

CollabCAD

Workflow System User Manual

INDEX

Contents	Page No.
Chapter 1 Introduction And Prerequisites	3
Chapter 2 Running The Workflow Module	4
2.1 Server Management	4
2.1.1 Environment Setting	4
2.1.2 Application Server	5
2.1.3 Web Interface	
2.2 Mail Configuration	5
Chapter 3 Creating a Workflow	6
3.1 Creating Users	6
3.2 Listing Users	9
3.3 Deleting Users	9
3.4 Profiles of Users	10
3.5 Creating a Workflow Project	11
3.6 Importing The Project	15
3.7 Instantiate Project	16
3.8 Viewing the List of Running Activities	16
3.9 Accessing the TO DO List	17
3.10 Viewing the List of Done Activities	17
3.11 View and Deletion of Process	18
3.12 Start/Deploy/Undeploy a Process	19
3.13 Deletion/Termination of the Instances	20
Chapter 4 Setup Activity For JMS	21
Chapter 5 Log Details	22
Chapter 6 Trace Details	23
Chapter 7 History Details	24
Chapter 8 Case Study: Using XForm	
8.1 Database Requirements	26
8.2 ProEd Action Connectors	26
8.3 Creating the XForm	28
8.4 Importing a Project	33
8.5 View JSP files through Bonita	35
Chapter 9 Case Study: Setting Deadline to an Activity	
9.1 Invoking Hook in a Workflow	40
9.2 Create a Project	42
9.3 Instantiate a Project	43
Chapter 10 Configuration of Database	44

1.1 Introduction

Bonita is a workflow/BPM solution for handling long-running, user-oriented workflows. Bonita is implemented as an J2EE application and is released under LGPL license. Bonita implements the Workflow Management Coalitions's **XPDL** (XML Process Definition Language).

Traditional workflow features like dynamic user/roles resolution, activity performer and sequential execution are also supported. Processes are created and executed programmatically via EJB 2 or Web services API's, processes can also be dynamically updated at Runtime.

Main Benefits:

Improve the efficiency of collaborative work with Bonita: a team shares a common view of the current tasks, each individual can have real-time awareness about what is going on. Reduce costs and risks by automating person-to-person and system-to-system processes. Processes can span over organizations and geographical locations.

Handle efficiently unexpected situations: Bonita allows you to securely and dynamically modify the definition of a running process in order to take into account events that were not planned.

Take benefit from several qualities of services that the integration with a J2EE application server provides. These qualities of services include transactions, role-based authentication and life cycle management, connection with external information systems.

1.2 Prerequisites

- 1.2.1 You need to have JDK 1.4 /JDK 1.5(Server) or JRE 1.4/JRE 1.4 (Client) installed.(You may download JDK 1.4.2 from <http://java.sun.com/products/archive/j2se/1.4.2/index.html> Or You may download JDK 1.5 from <http://java.sun.com/j2se/1.5.0/> Select J2SE v1.4.2/J2SE v1.5 – SDK for servers and JRE for clients)
- 1.2.2 Set your environment variable \$JAVA_HOME - JDK 1.5+ home
(eg: JAVA_HOME = c:\jdk1.5\ for Windows/jdk1.5 for Linux)

2. Running the Workflow Module

2.1 Server Management

2.1.1 Environment settings

The Administrator needs to make the following Environmental settings

2.1.1.1 JONAS_ROOT - Jonas version home

(eg. C:\CollabCAD\tools\Workflow\JOnAS-4.8.4 for Windows
/CollabCAD/tools/Workflow/JOnAS-4.8.4 for Linux)

2.1.1.2 ANT_HOME - jakarta ant home

(eg: C:\CollabCAD\tools\Workflow\apache-ant-1.6.4 for Windows
/CollabCAD/tools/Workflow/apache-ant-1.6.4 for Linux)

2.1.1.3 BONITA_HOME - Bonita home install directory

(eg: C:\CollabCAD\tools\Workflow\bonita-v3.0\bonita for Windows
/CollabCAD/tools/Workflow/bonita-v3.0/bonita for Linux)

2.1.1.4 JONAS_BASE - Jonas version home

(For Linux eg. \$JONAS_ROOT/BSOA_base)
(For Windows eg. %JONAS_ROOT%\BSOA_base)

2.1.1.5 Change the location of the file “**bonitaLog.xml**” in the file JONAS_BASE\conf\log4j.properties

2.1.1.6 Change the location of the file “**repository.xml**” in the file JONAS_BASE\conf**repository.properties**

2.1.1.7 PATH variable setting

(For Linux e.g., \$JONAS_ROOT/bin/unix\
\$ANT_HOME/bin\
\$JAVA_HOME/bin)
(For Windows e.g., %JONAS_ROOT%\bin\nt;
%ANT_HOME%\bin;
%JAVA_HOME%\bin)

2.1.2 Application Server

2.1.2.1 Start JOnAS server from command line using the command “jonas start”.

2.1.2.2 Stop JOnAS server from command line using the command “jonas stop”.

2.1.3 Web Interface

2.1.3.1 Connect to the Bonita Web Interface which is available at:

<http://{hostname}:{portnumber}/jiapAdmin>

where hostname and portnumber are that used by the Administrator (default portnumber is 9000) to start the jonas server.

(Use: Login = bsoa in, password = bsoa)

2.2 Mail Configuration

The administrator is required to reconfigure the following in \$JONAS_ROOT/conf/MailSession1.properties

```
mail.from <from address>
mail.<protocol>.host < hostname>
mail.<protocol>.port <portname>
```

An example of the file MailSession1.properties is provided for reference below:

```
#####
## Required properties
#####

#Factory Name/Type
mail.factory.name Mail
mail.factory.type javax.mail.Session

#####
## Optional properties
## Each line can be removed
#####

### Authentication
#mail.authentication.username <my.username>
#mail.authentication.password <my.password>

### Session properties
#mail.debug <true|false>
mail.from <p.kumar@nic.in>
#mail.mime.address.strict <true|false>
#mail.host <my.mail.hostname>
#mail.store.protocol <pop3,...>
#mail.transport.protocol <smtp,...>
#mail.user <username>

### For each protocol: imap, pop3, smtp,...
### Ovveride default values defined aboved
#mail.<protocol>.class <class name>
mail.smtp.host 192.168.1.1
mail.smtp.port 25
#mail.<protocol>.user <username.for.a.specific.protocol>
```

3. Creating a Workflow

[[Refer to Bonita User Guide \(PDF\)](#) for more details.]

3.1 Creating Users

This facility is available at <http://{hostname}:{portnumber}/jiiapAdmin> in the Address Bar. The login page [Fig. 1] appears. Login with existing user (bsoa/ bsoa).



Fig-1

The workflow process page will appear. The left panel tree structure shows the following nodes –

- a) Administrator
- b) Designer
- c) Operator
- d) User

These are the possible roles. [Fig. 2].



Fig-2

A screenshot of the expanded tree (with details) is given in Fig. 3.

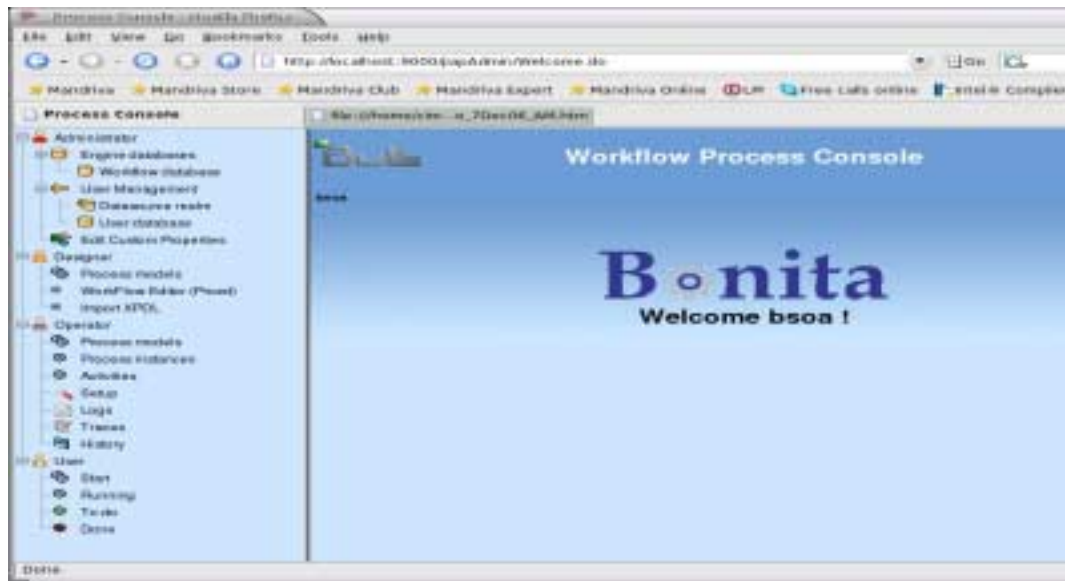


Fig-3

The Administrator has the following options :

- 1) Engine database
- 2) User Management
- 3) Edit Custom Properties

3.1.1 To create a new user, the Administrator or user with Admin rights selects "Administrator -> User Management" [Fig. 4]

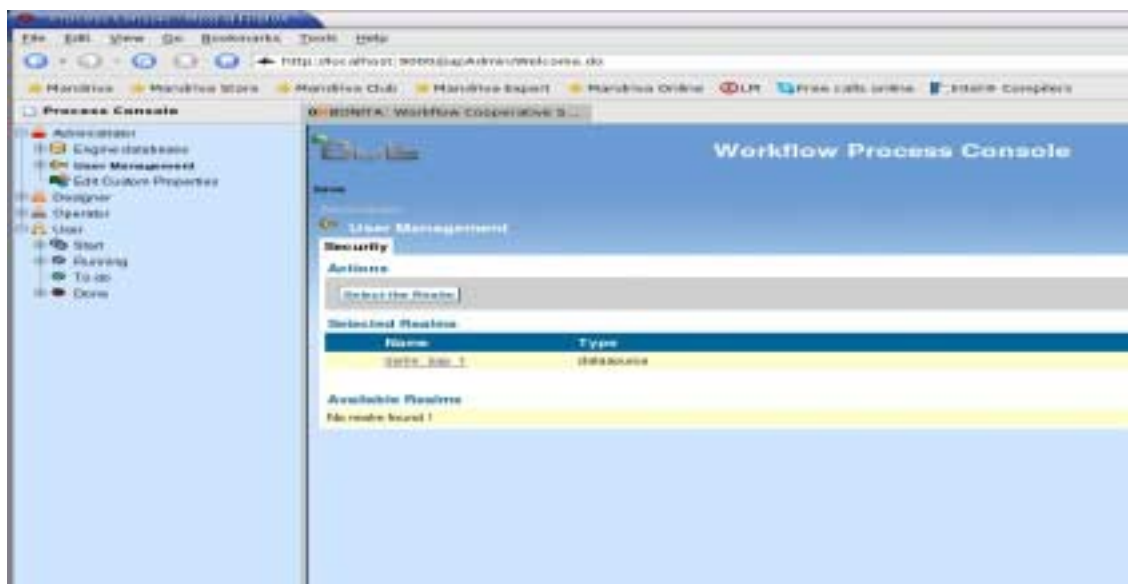


Fig-4

3.1.2 Select “dsrlm jiap 1” under “Selected Realm”. A new page appears. [Fig. 5]

3.1.3 Select the tab "Users" under the "Datasource realm".

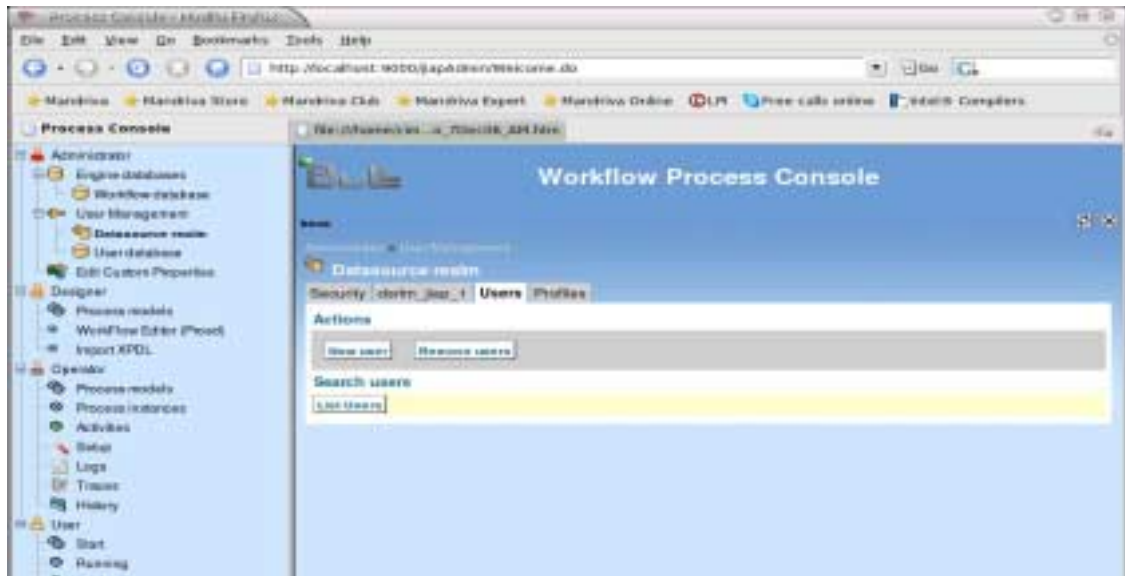


Fig-5

3.1.4 Select "New user". Enter valid input in the form and click on the "create" button. [Fig. 6]

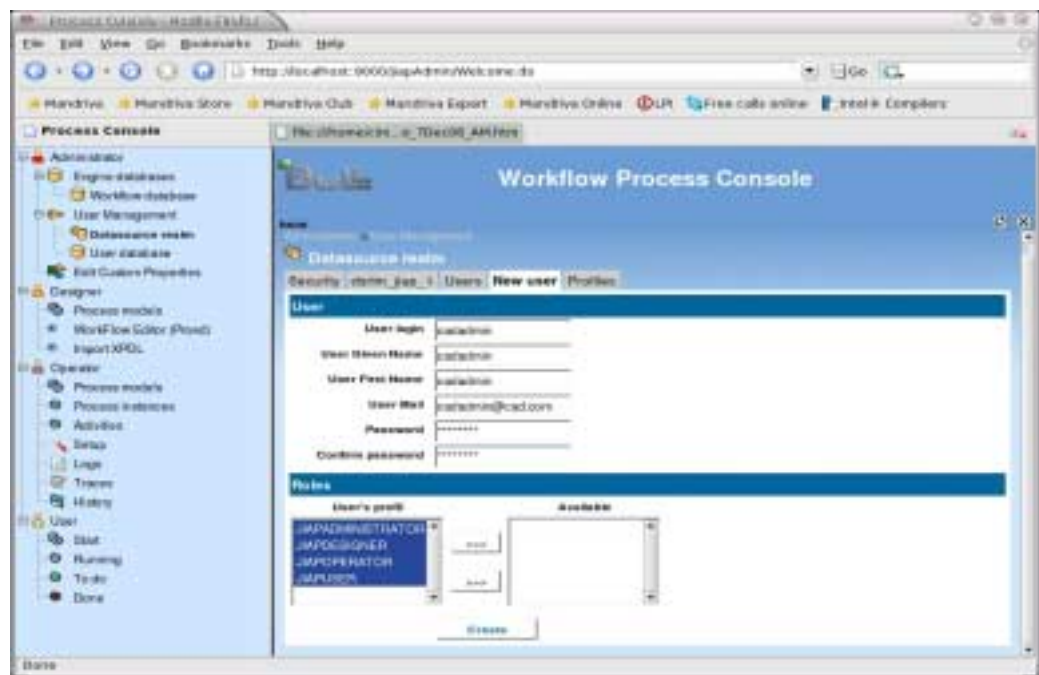


Fig-6

3.2 Listing Users

In the Datasource_Realm select “List Users” [Fig. 5] to list all users as shown in Fig. 7.

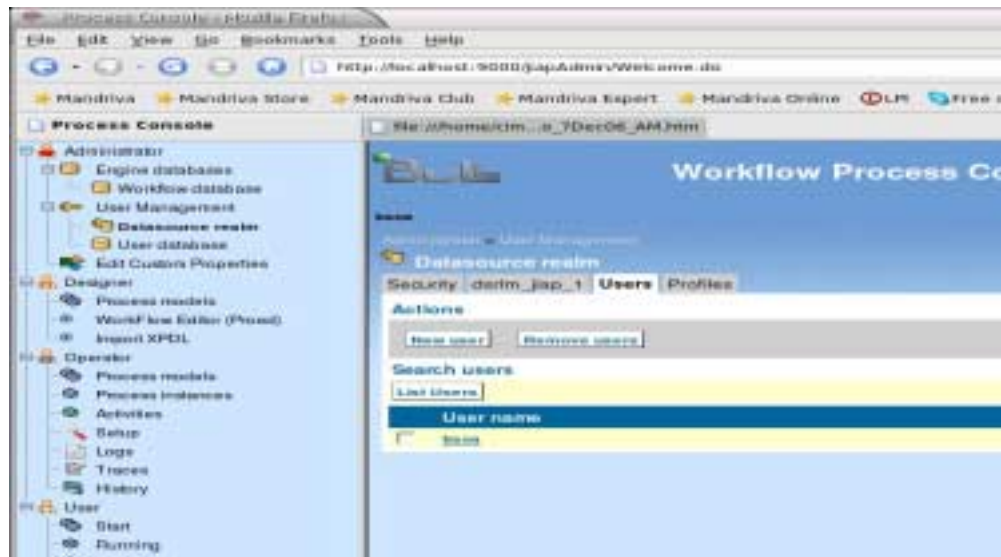


Fig-7

3.3 Deleting Users

In step 3.2 [Fig. 7], user(Admin) can delete any user by selecting the user and by clicking on the button “Remove Users”. This will lead to the following confirmation page. [Fig. 8].

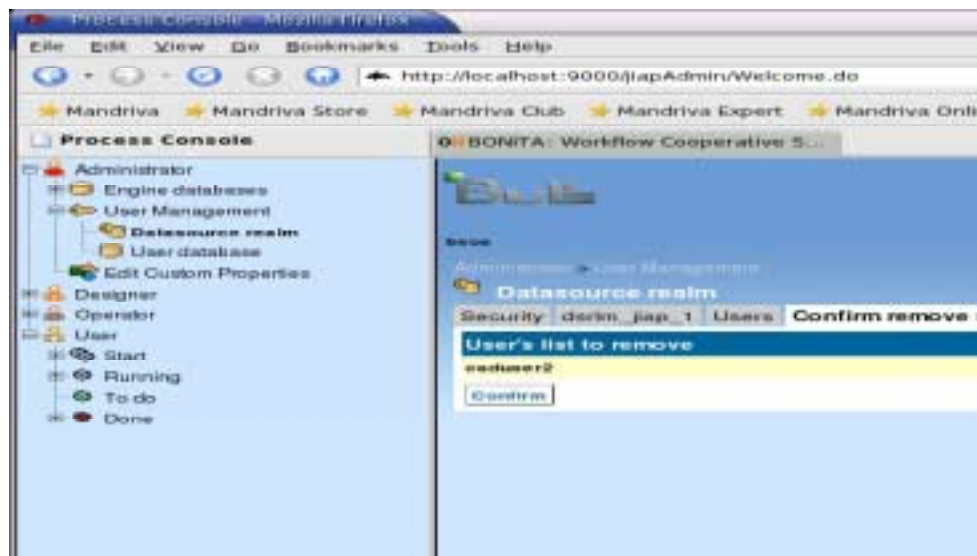


Fig-8

Clicking “Confirm” button will delete the selected user.

3.4 Profiles of Users

3.4.1 In [Fig. 5] of step 3.1 we can select the tab labeled as “Profiles. This shows different profile names for the users. [Fig. 9].

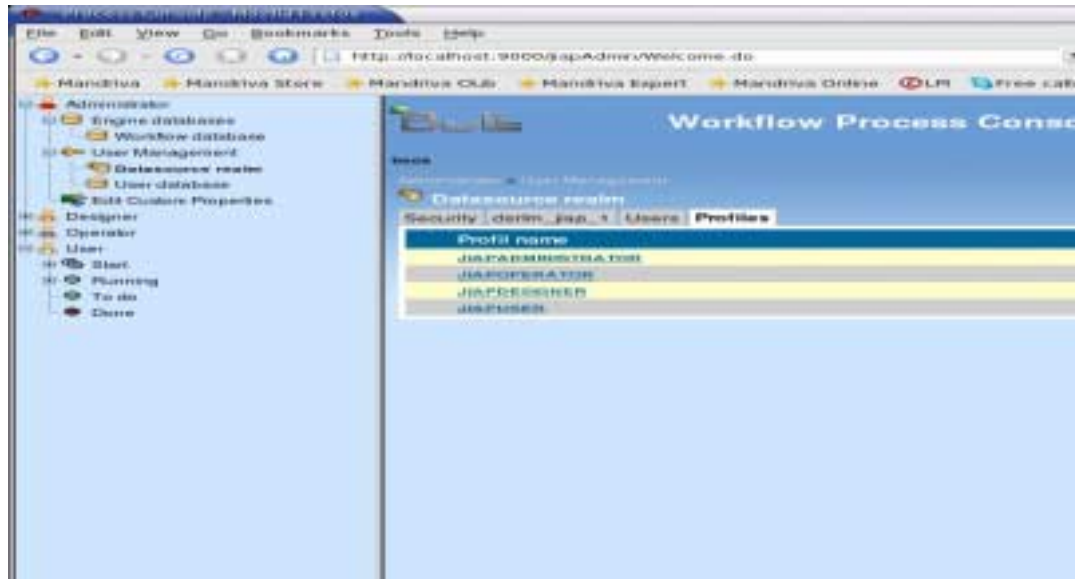


Fig- 9

3.4.2 Select “JIAPADMINISTRATOR”. A list of the users appears. Admin (User) can edit or view the details of any user. [Fig. 4.a]

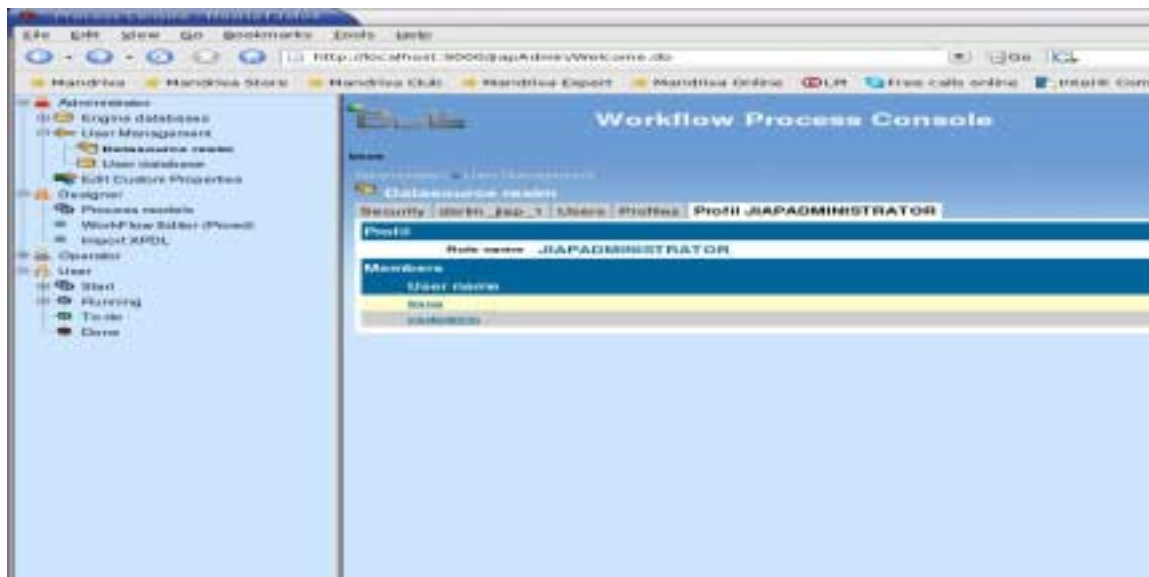


Fig-10

3.4.3 To edit the user account select a particular user (e.g. bsoa) from “Member User Name”. [Fig. 11]

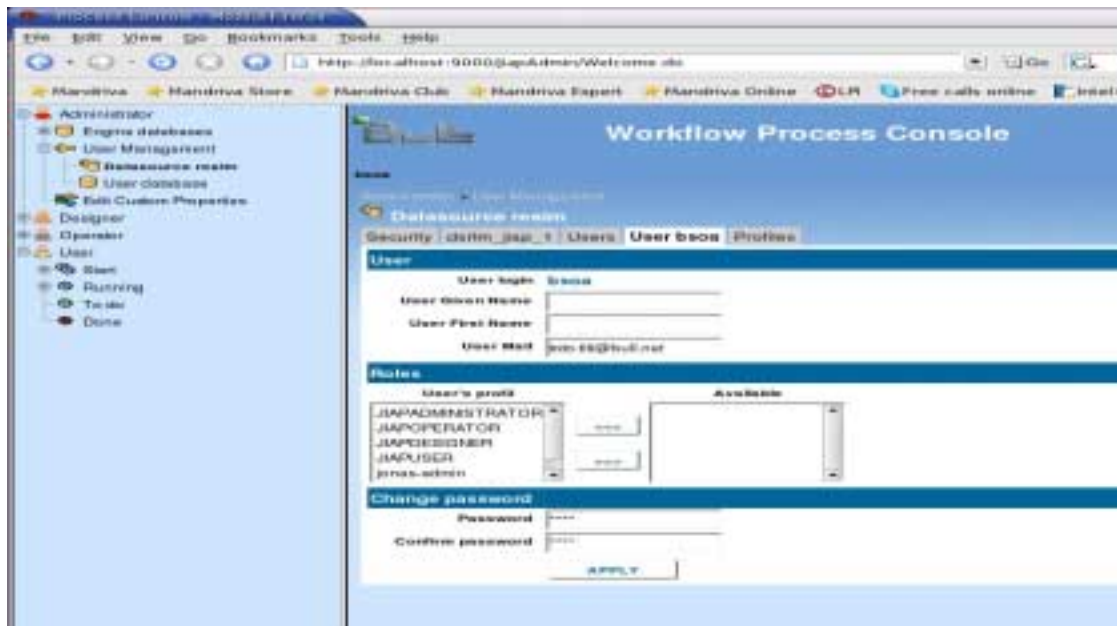


Fig- 11

User can edit “User mail”, “Roles” and “Password” of user.

3.5 Creating a Workflow Project

3.5.1 For creating a Project in Workflow Administrator user has to select "Designer -> Workflow Editor (Proed)" [Fig. 12.] A new window will appear ("ProEd" window).

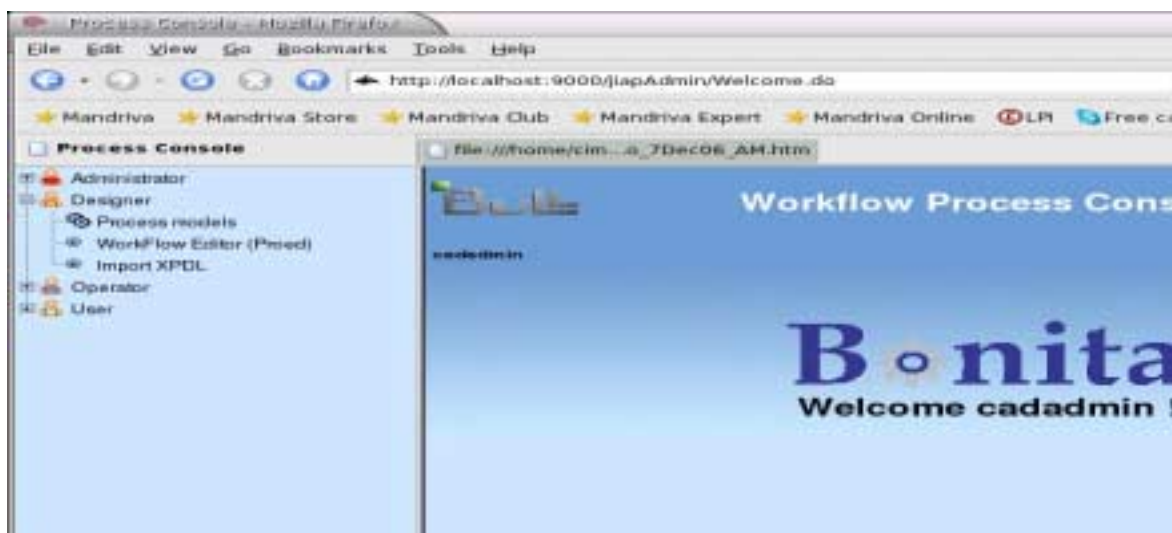


Fig- 12

3.5.2 Select File menu in the "ProEd" window and click on "new". A new GUI will appear where user has to enter the correct value. (In our example we have CollabCAD_Template in text box "Name") and on clicking "OK" button a project with the name "CollabCAD_Template" will be created. [Fig. 13]

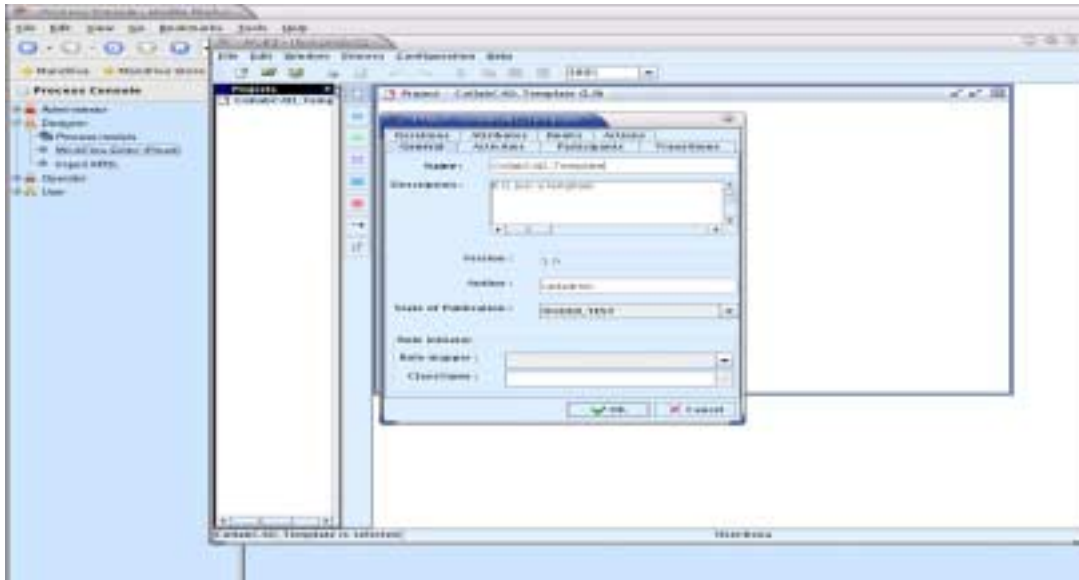


Fig-13

3.5.3 In the ProEd Project window go to the workflow toolbar and select "Add Activity" symbol. Now on clicking mouse on template window a new GUI will appear where user need to enter correct values in different fields (like "Design" in field Name , Description etc). [Fig. 14]

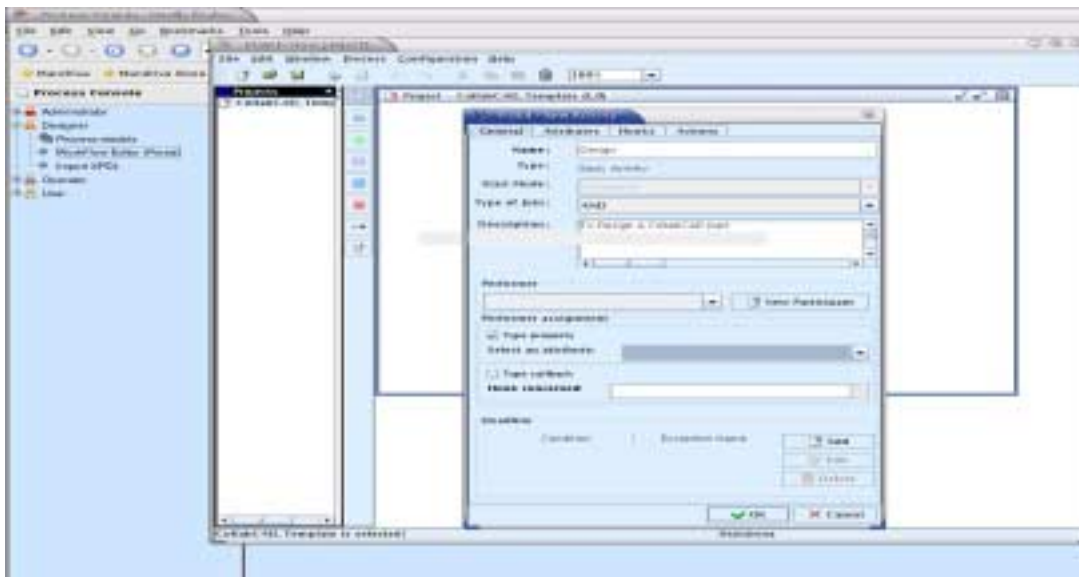


Fig-14

3.5.4 Now user has to add particular user to this activity. So he has to select the button "New Participants". On clicking this button the following GUI will appear. [Fig. 15].

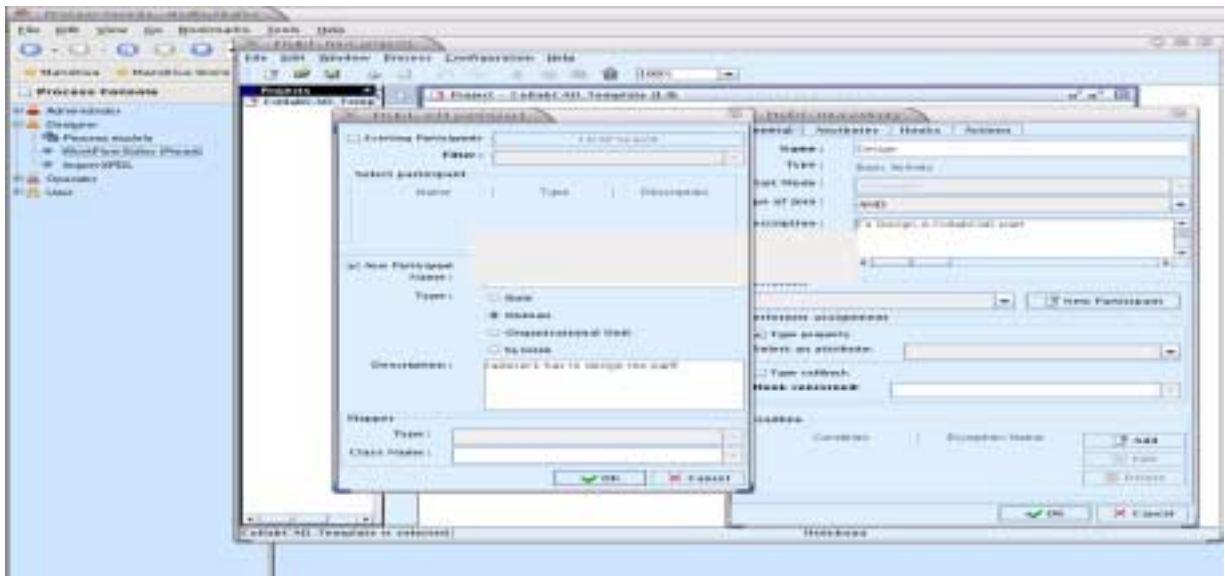


Fig-15

3.5.5 The user has to select existing participant from the combo box "Existing Participants" or he can enter new name in the field "New Participant".

[In our example we have created Users are cadadmin, caduser1 and caduser2. We created three activities "Design"(Assigned to user caduser1), "Review" (Assigned to user caduser2) and "Submit" (Assigned to user cadadmin).]

3.5.6 User can also assign deadline to a activity by selecting the button "Add" under the label "Deadline" In the example, we have entered deadline date of different users (cadadmin, caduser1, caduser2). [Fig. 16]



Fig- 16

The complete workflow is shown in Fig. 17.

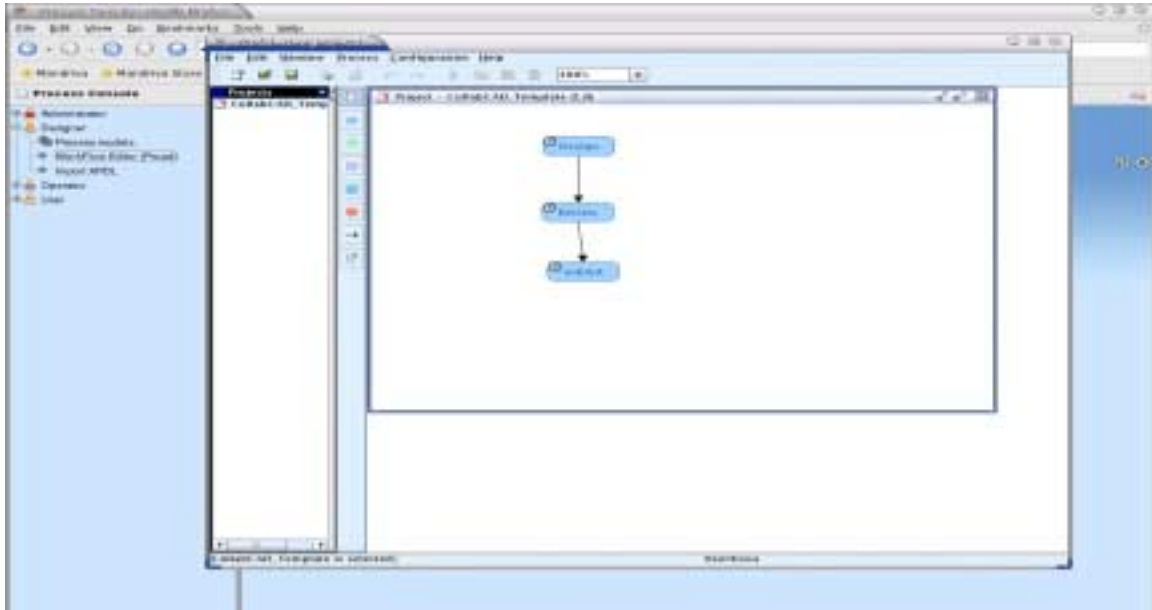


Fig-17

3.5.7 Save the workflow in the name of CollabCAD_Template_1.0.xpdl from “File->Save” menu. We can save the project to both “Local File System” and “workflow repository”. [Fig-18]

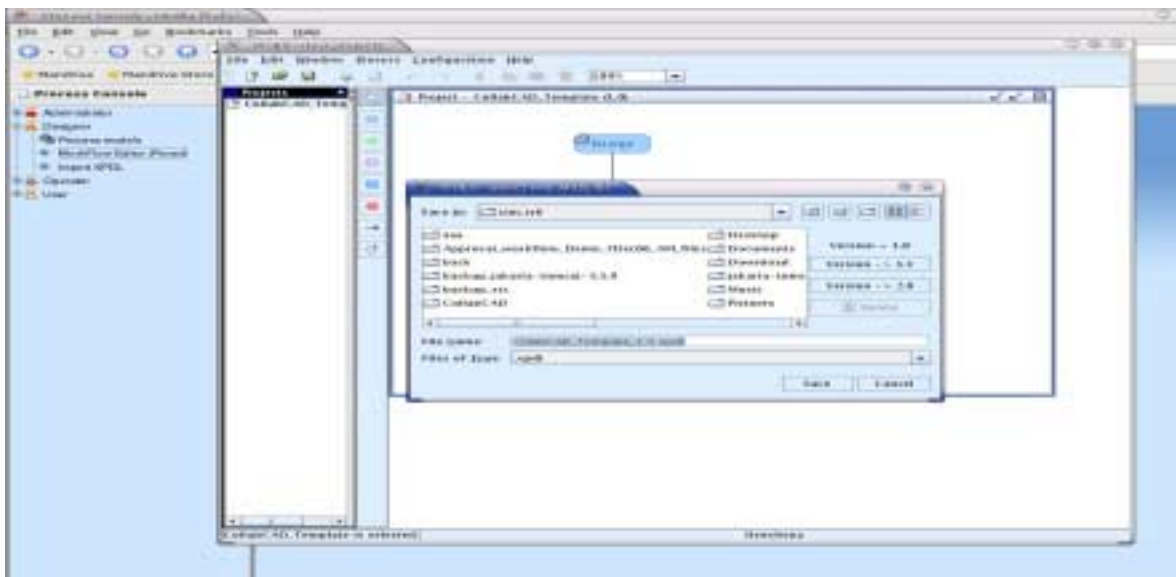


Fig-18

3.6 Importing a Workflow

User needs to bring the project to its workflow database so that other users can work on it. This can be accomplished by importing the project.

3.6.1 In the browser window of workflow select "Designer" -> "Import XPDL". Browse the ".xpd" file from the local system. User can also import the project file from the repository by clicking the tab "Import from workflow repository". Now click on the "Import" button. [Fig. 19]

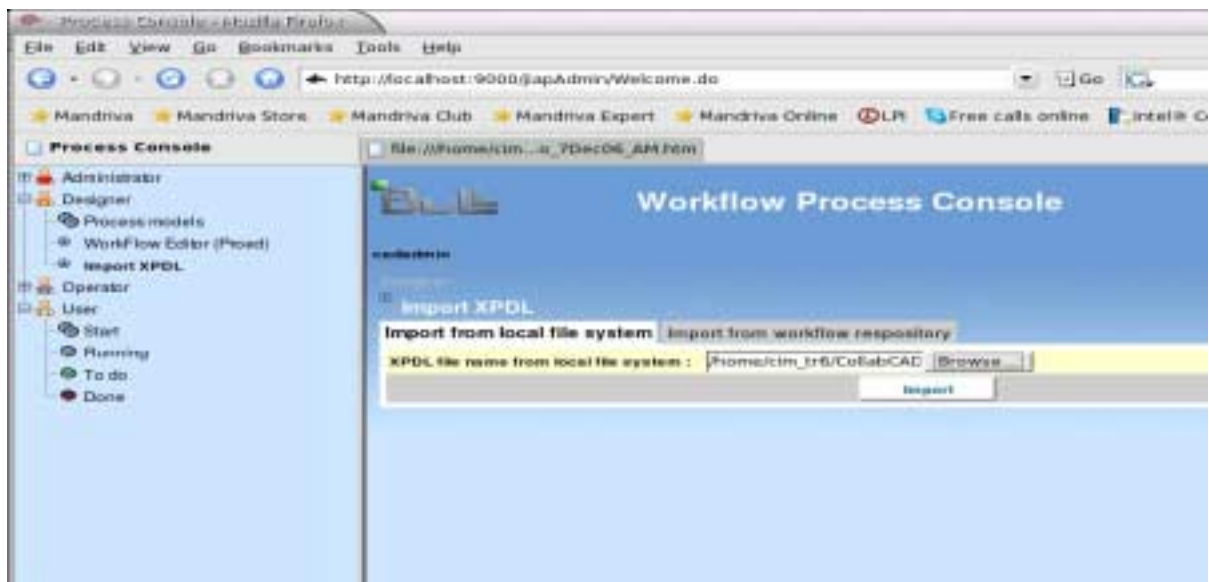


Fig-19

3.6.2 On successful import, a message will be shown as "Process CollabCAD_Template (1.0) was successfully added". [Fig. 20]

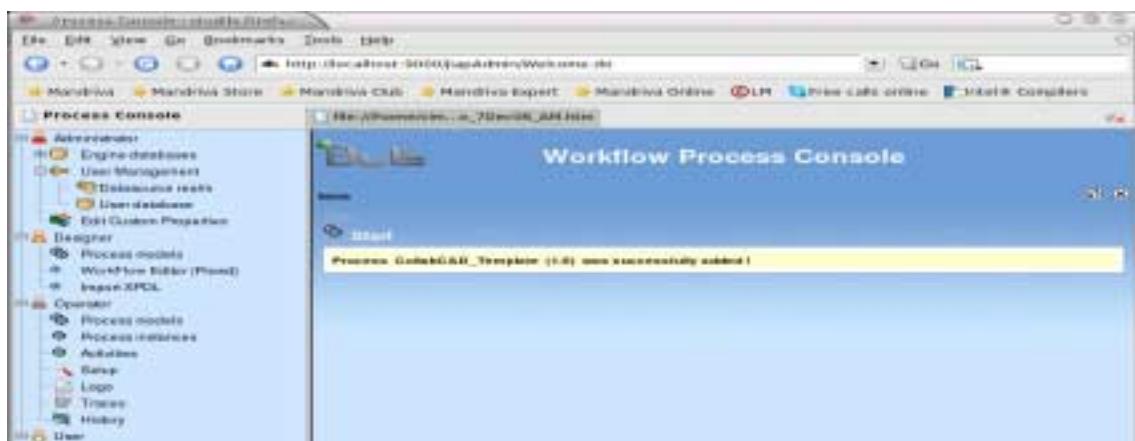


Fig- 20

3.7 Instantiate Project

Project can be instantiated by following steps:

3.7.1 Click on "User -> Start -> CollabCAD_Template(1.0)" in left panel of the browser. It leads to the page in Fig-21.

3.7.2 Project will be instantiated on clicking "Start" [Fig-21] (Green button).

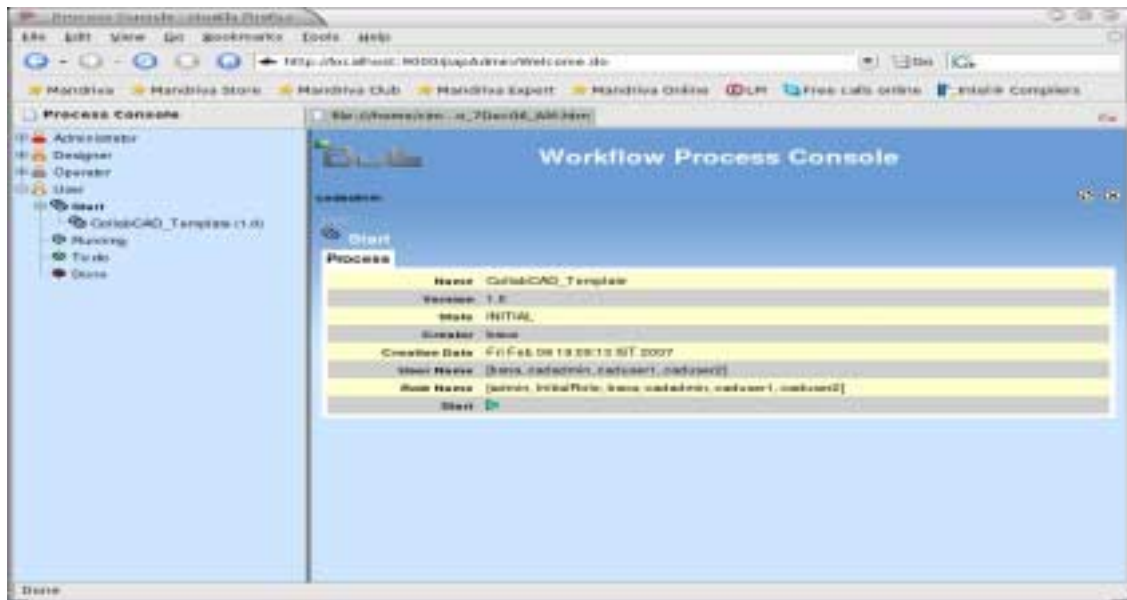


Fig- 21

3.8 Viewing the list of Running Activities

Click on "User -> Running -> CollabCAD_Template". The process instance details are displayed [Fig -22].

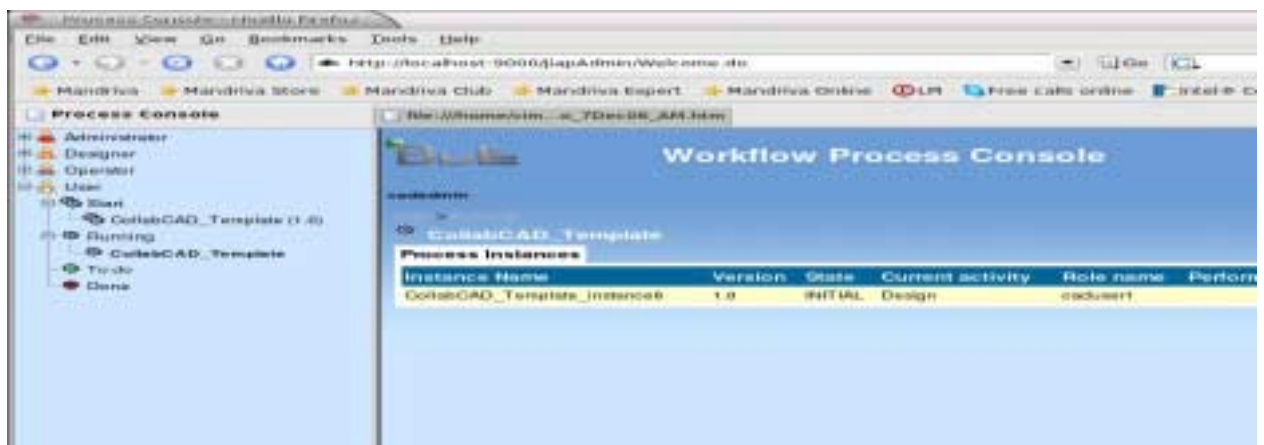


Fig- 22

3.9 Accessing the “To Do” list

3.9.1 On login, User can see the "To do" list through "User -> To do [Fig- 23]

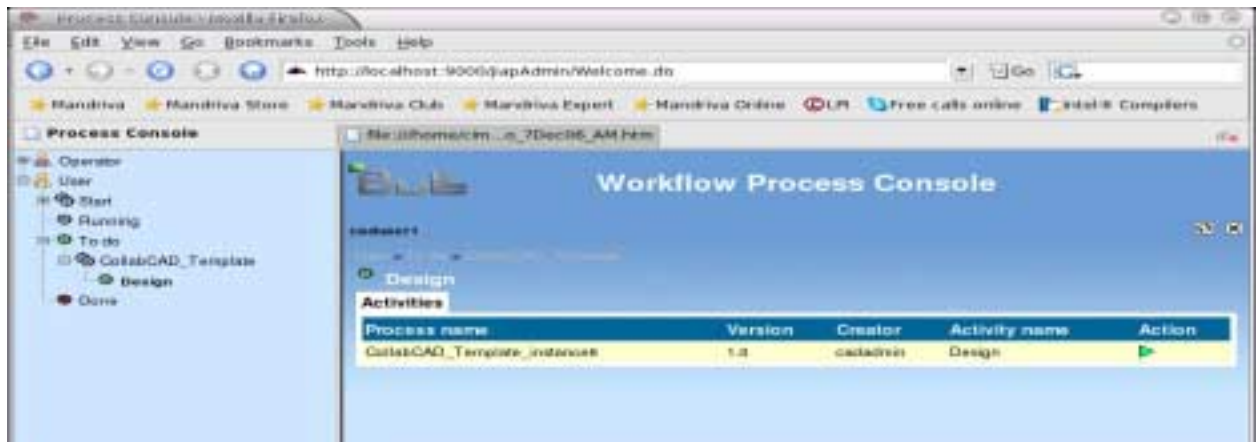


Fig-23

3.9.2 In [Fig-23] user "caduser1" has to start the activity by clicking the "start" icon under “Action”.

3.9.3 Click the node “User->Done”.

3.10 Viewing the list of “Done” Activities

Select “User -> Done ” in left panel of the browser to view a list of the “Done” Activities.[Fig-24]

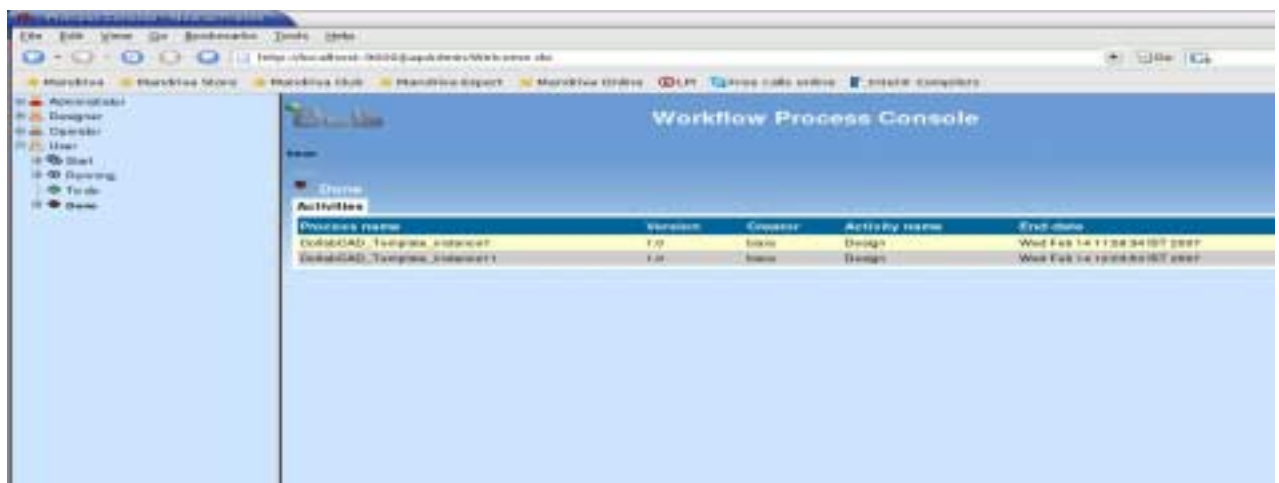


Fig- 24

3.11 View and Deletion of Process

User can View and Delete the activities after login successfully.

3.11.1 Select “Designer -> Process Models” [Fig-25] to view the process details.



Fig- 25

3.11.2 Selecting “CollabCAD_Template”(in our example) will give details of a project as in Fig. 26.

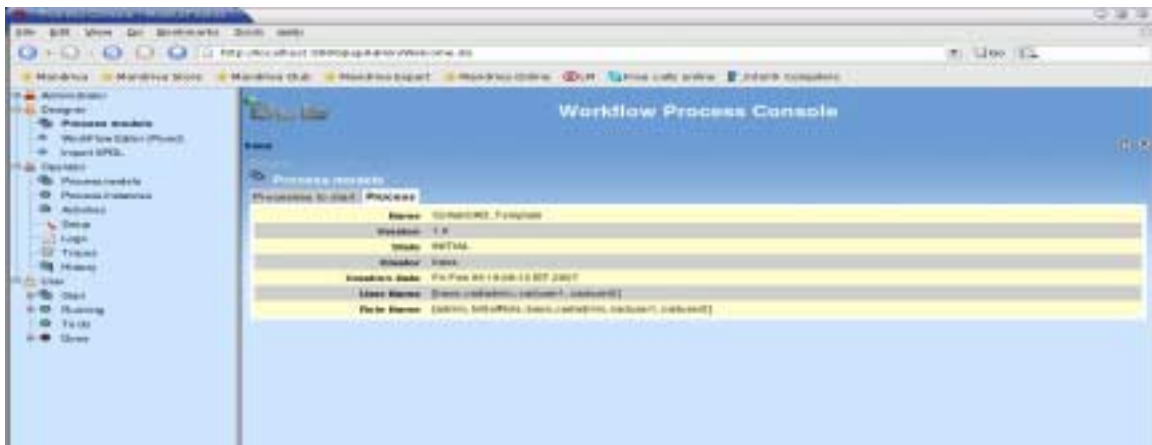


Fig-26

In [Fig-11] click on the link “Delete” under the label “Action” to delete the process .

3.12 Start/Deploy/Undeploy a Process

3.12.1 From the Navigational tree select “Operator -> Process Models” [Fig. 27]

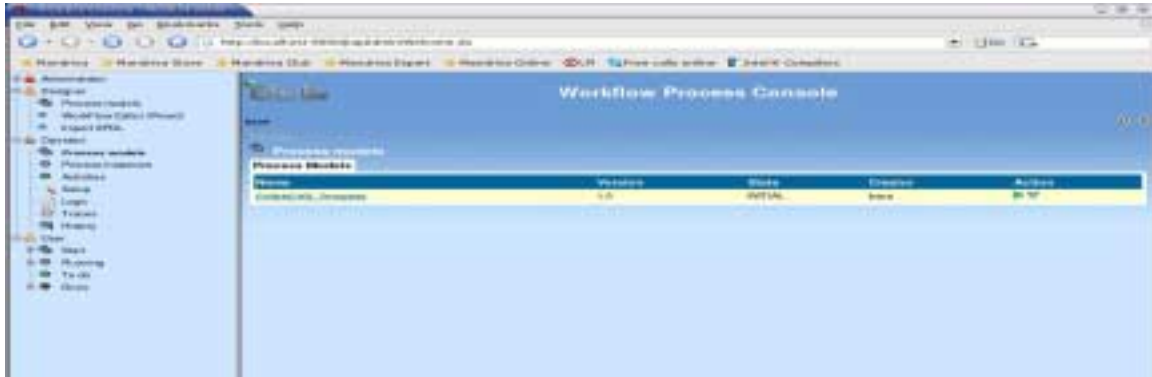


Fig- 27

3.12.2 Select Start/undeploy symbol under column “Action” to deploy or undeploy the process.

3.12.3 Select process name (e.g. “CollabCAD_Template”) under “Name”.

In Fig. 28 the details of the process in the workflow are described. The user can deploy or undeploy the process by clicking the “start” or “undeploy” symbol.

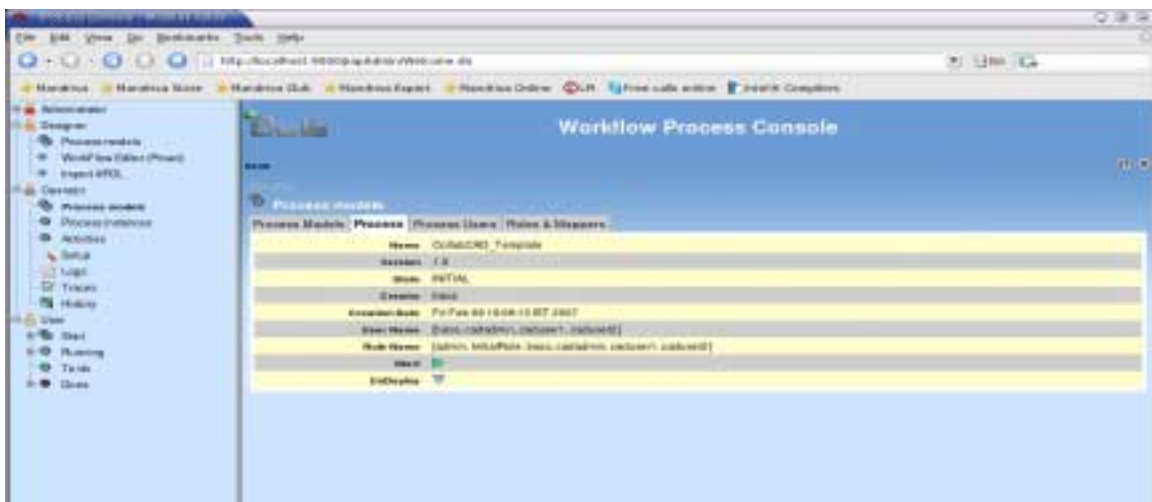


Fig- 28

3.13 Deletion/Termination of the Instances

In the Navigational tree select “Operator -> Process instances”. User can terminate or delete instances by clicking on the respective symbol on against each instance name under column “Action”. [Fig. 29]



Fig-29

4. Setup activity For JMS

4.1 In the Navigational tree select “Operator -> Setup” [Fig. 30]

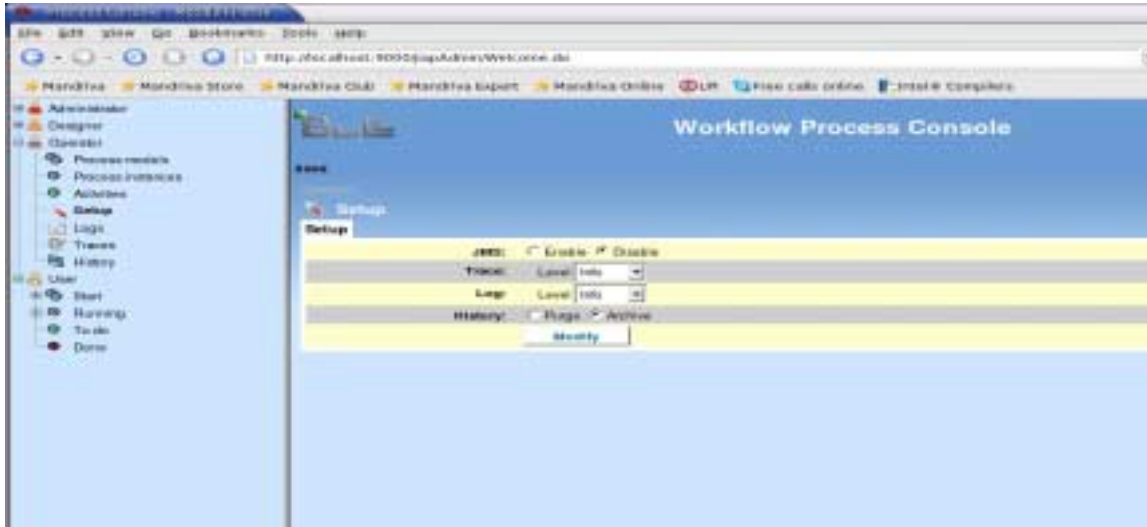


Fig-30

4.2 Select the “Modify” button. [Fig 31]

4.3 Confirm the modification by clicking on the “Confirm” button.

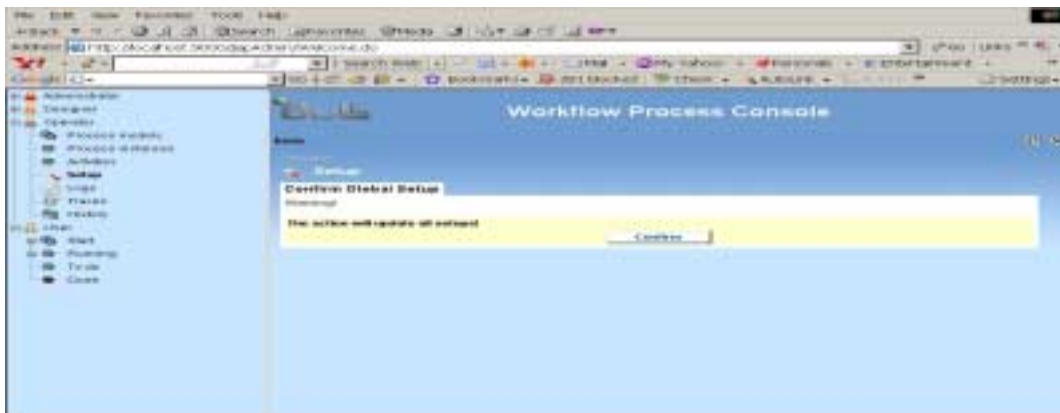


Fig- 31

5. Log Details

User can check and search Log Details of the workflow process.

5.1 In the navigational tree select “Operator -> Logs” [Fig. 32]

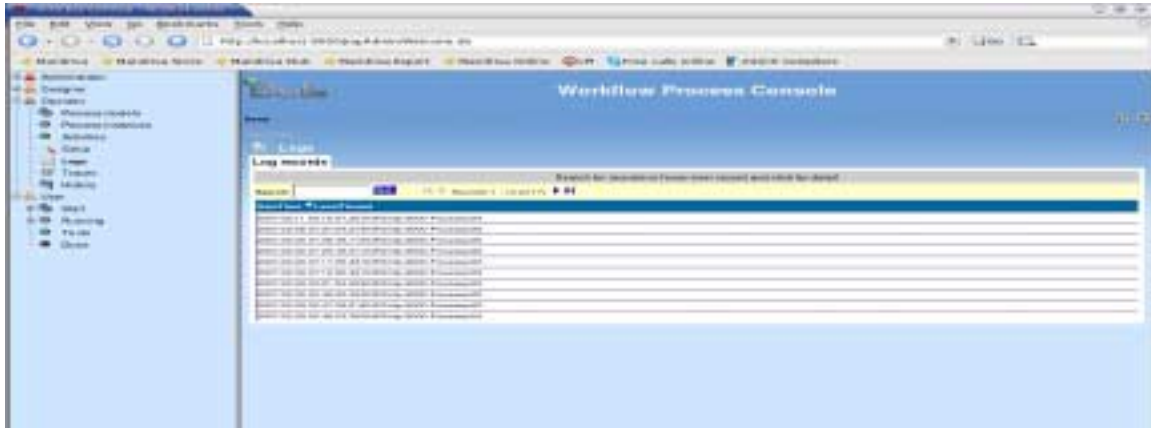


Fig- 32

5.2 Click on any line of the log table to display details of that line.

6. Trace Details

User can check and search the trace details of processes.

6.1 Select "Operator->Traces" from the Navigational tree. [Fig. 33]



Fig- 33

6.2 Click a line of the traces table to display details of that trace line.

7. History Details

User can check the History of process instances .

7.1 Select “Operator->History” from the Navigational tree. [Fig. 34]

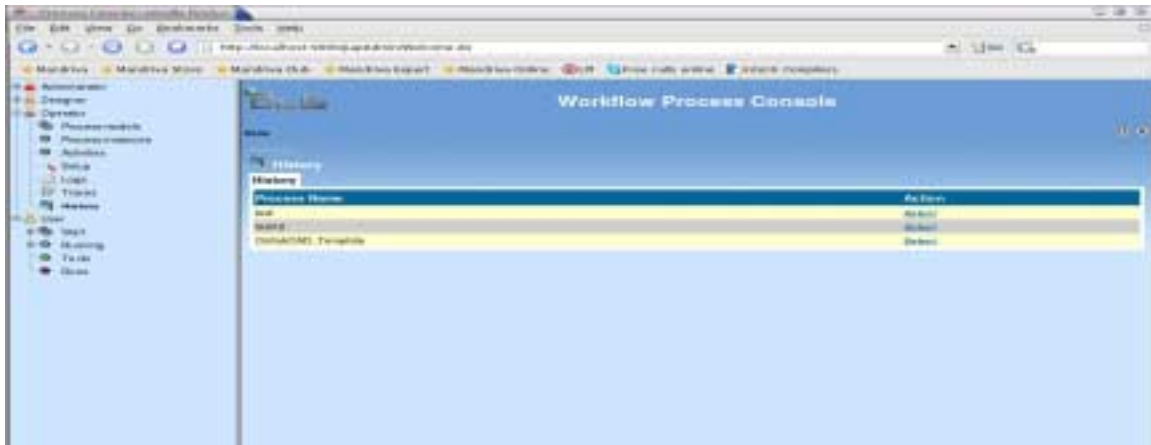


Fig- 34

7.2 Select the particular process instance (e.g. CollabCAD_Template). [Fig. 35]

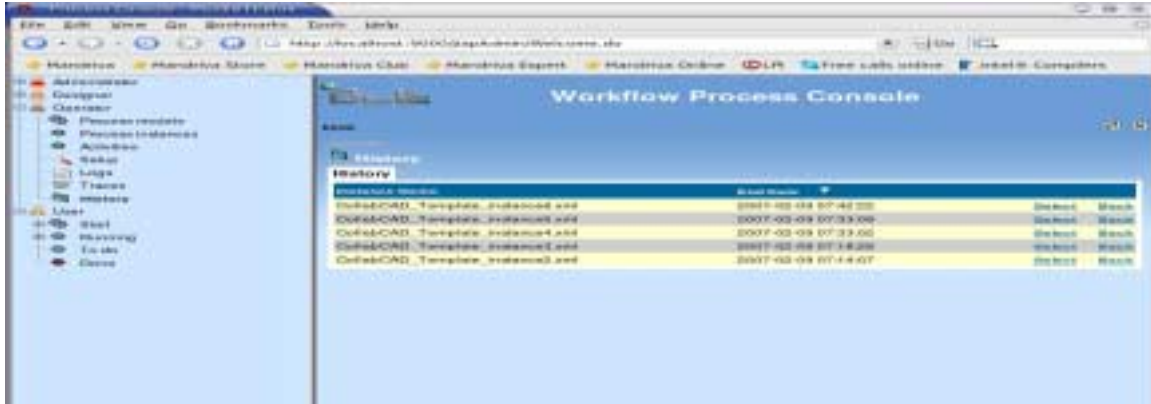


Fig- 35

7.3 Here for each instance one XML file will be shown. The user can select particular instance (XML file) to view the details as shown in Fig. –36.

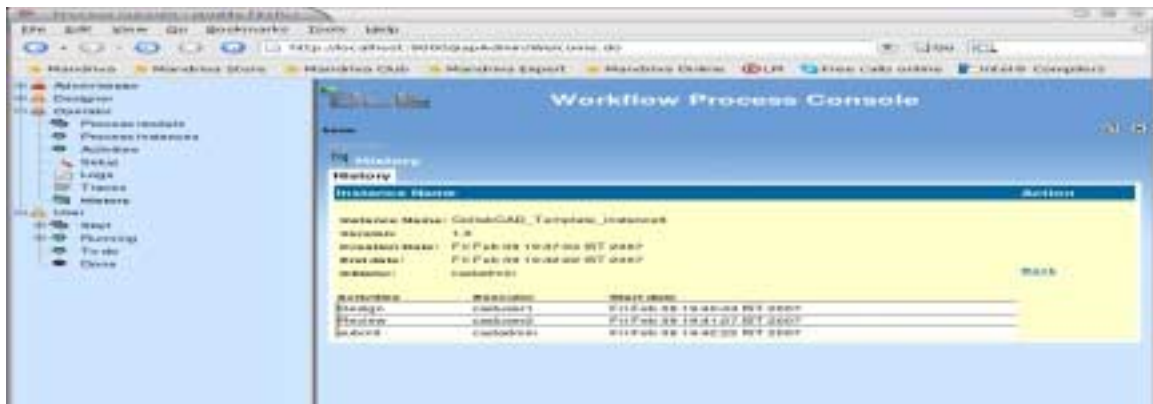


Fig- 36

Here all the "Activities", "executor" and "Start date" will be shown as a list.

7.4 The user can see the details of a particular activity [Fig. –37]



Fig- 37

8. Case Study : Using XForm

8.1 Database Requirements

In this case study, the “postgresql” database has been used. Username and Password are postgres/postgres. A table called “testing” with database “test” has been created. The description for the table “testing” is given below:

```
CREATE TABLE testing
(
  sn numeric(5,2) NOT NULL,
  wono varchar(20),
  noj varchar(60),
  nop varchar(15),
  qty numeric(6,2),
  doa varchar(20),
  dot varchar(20),
  plnr varchar(16),
  remark varchar(60)
)
WITHOUT OIDS;
ALTER TABLE testing OWNER TO postgres;
```

8.2 ProEd Action Connectors

The action class system allows an activity in a ProEd project to execute a simple, easily constructed java class on the workflow server without having to create a full-blown hook class. This facilitates the use of existing classes that are already able to perform some desired function, as well as accessing web services. The terms Actions, Action Classes and connectors have all been used to refer to this system. ProEd creates a HookScript entry in the generated XPDL. This is type of hook is referred to as an InterHook. The HookScript is sort of a wrapper invoking the desired functionality of the specified action class, passing information from the activity and returning values. The HookScript is created from a user configurable template and is based on the activity context, the action class, and the setting selected in the Add Action dialog.

In addition, there is a user configurable properties file, located on the server, associated with each action class, providing additional information to ProEd. This allow ProEd to enhance the user interface by providing such things as meaningful parameter names, parameter descriptions, and pre-defined lists of parameter value options.

8.2.1 File Structure of Action Class System

The action class system uses three types of files:

- a) Action classes - <action>.class

The class implementing the desired business logic

- b) Properties files - <action>.properties

Provide additional information to ProEd, such as parameter names and descriptions.

- c) Template files - <action>.template or default.template

A template for creating a HookScript entry of the <project>.xpdL file, used to access the action class from within the Workflow server

8.2.2 Directory Hierarchy

All action class system files are located on the workflow server, in the action directory, located at: <JONAS_BASE>/bonitaScripts/**action** directory. Create a separate sub directory for each action type.

For example the files **Insert.java** and **Insert.properties** are put in the folder **Testing**. The **Insert.java** file needs to be compiled.

(e.g., For Window: Go to %JONAS_BASE%\bonitaScripts\action\Testing
For Linux: Go to \$JONAS_BASE/bonitaScripts/action/Testing
run <javac **Insert.java**>).

Code for of Insert.java is given below:

```
package action.Testing;
import java.sql.*;
import java.util.*;
public class Insert {
    int a;
    public void insert (String sn, String wono, String name_of_job, String name_of_project, String qty,
        String date_of_accept, String target_date, String plnr ,String remarks) {
        try{
            String url = "jdbc:postgresql://localhost:5432/test";
            Class.forName ("org.postgresql.Driver");
            Connection conn =
            DriverManager.getConnection(url,"postgres","postgres");
            Statement s=conn.createStatement();
            ResultSet n = s.executeQuery("select MAX(sn) from testing");
            if (n.next())
```

```

        a = n.getInt(1)+1;
    else
        a=1;
    s.executeUpdate("INSERT INTO testing
    values("+a+", '"+wono+"', '"+name_of_job+"', '"+name_of_project
    +"' ,"+Integer.parseInt(qty)+"', '"+date_of_accept+"', '"+target_date+"', '"+plnr+"',
    '"+remarks+"'");
    conn.close();
    System.out.println("SUCCESSFUL INSERTION!!");
}
catch(Exception es){
    System.out.println(es);
}
}
}

```

The code for **Insert.properties** is follow:

```

insert.params=(String sn,String wono,String name_of_job,String name_of_project,String qty,String
date_of_accept,String target_date,String plnr,String remarks)
insert.sn.paraminfo=First Input String
insert.wono.paraminfo=Second Input String
insert.name_of_job.paraminfo=Third Input String
insert.name_of_project.paraminfo=Fourth Input String
insert.qty.paraminfo=Fifth Input String
insert.date_of_accept.paraminfo=Sixth Input String
insert.target_date.paraminfo=Seventh Input String
insert.plnr.paraminfo=Eight Input String
insert.remarks.paraminfo=Nineth Input String

```

8.3 Creating the XForm

8.3.1 User has to create a Workflow/Project where he can either define the **Properties** of Project or individually to an Activity. The example creates a workflow called **Test**.

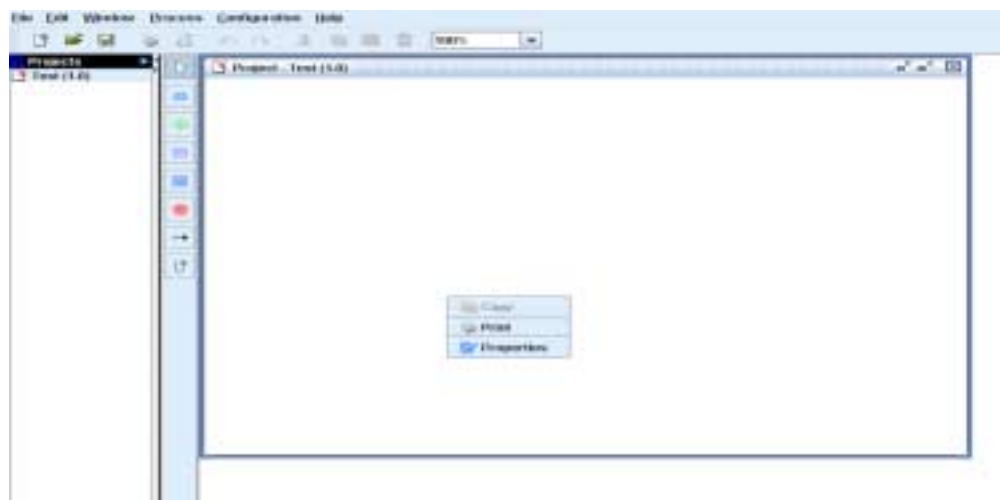


Fig- 38

8.3.2 On Right Clicking and selecting “**Properties**”, the GUI in Fig- 39 comes up.

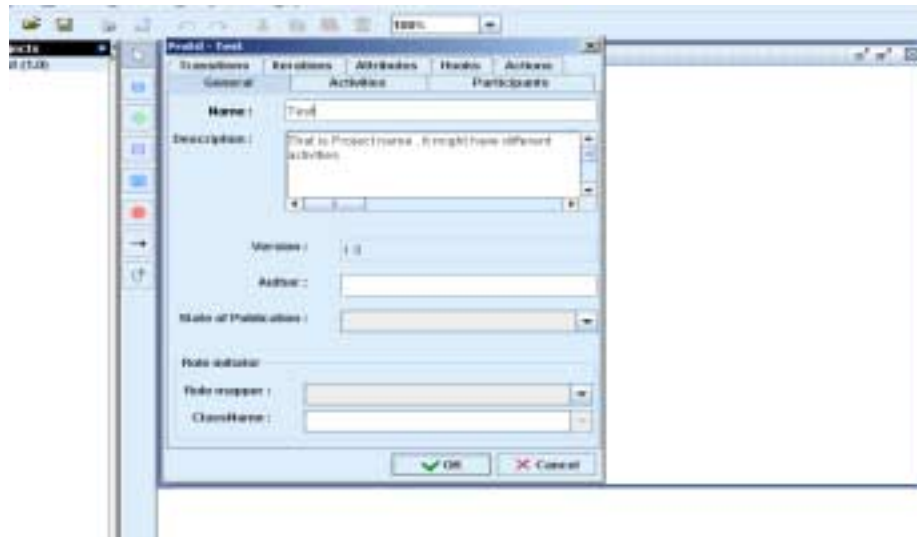


Fig- 39

8.3.3 Select **Attributes** tab and then “**Add**”. The following GUI [Fig – 40] comes up. The user has to enter the attribute **Name** and choose its **Type** :

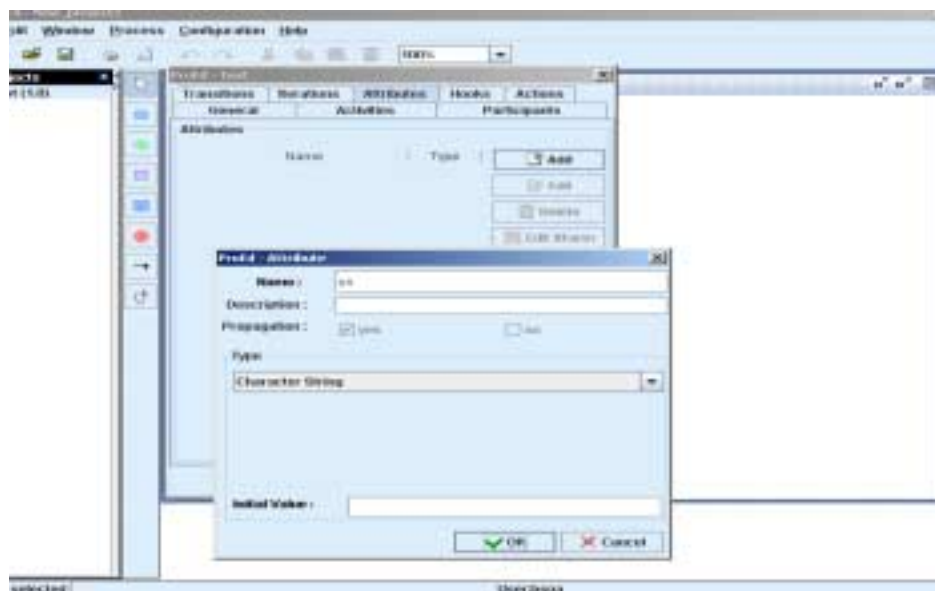


Fig- 40

8.3.4 After entering the **attributes name** the following GUI [Fig. – 41] comes up.

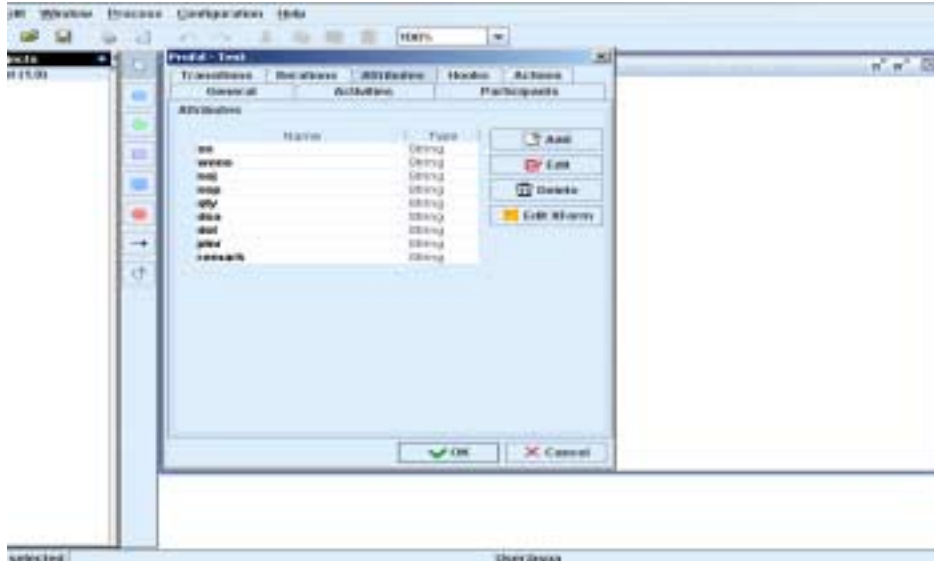


Fig- 41

8.3.5 Select the **Edit Xform** option. It will lead to the following GUI[Fig. – 42].



Fig- 42

8.3.6 The user has to select any text box (e.g. **sn**) and right click. The following GUI [Fig.43] comes up. The user has to set **Data type**, **Required**, **Relevant**, **Readonly** and **Constraints** according to requirement.

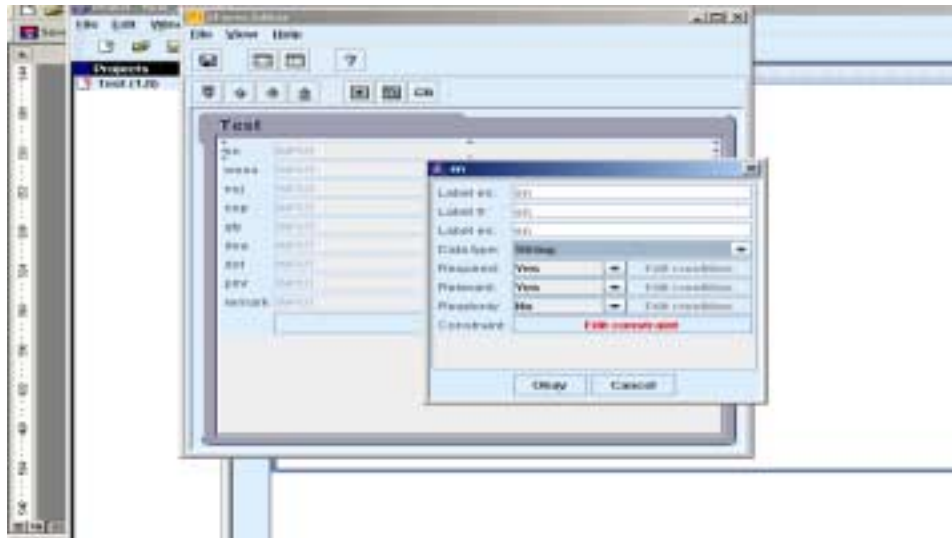


Fig- 43

The user can save by selecting the “Okay” option. Close the XForm Editor GUI.

8.3.7 Select “**Add Activity**” (Step 3.5.3). Enter the name of the activity and assign the participant for this activity by selecting “New Participant”. In the example we have created “**Activity1**” which is shown in Fig- 44.

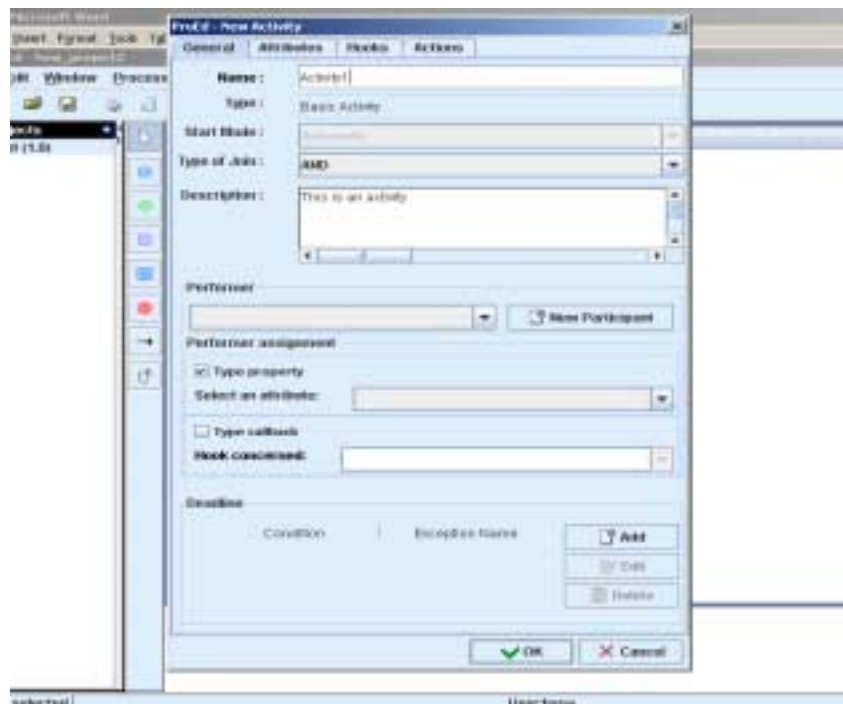


Fig – 44

8.3.8 By “**New Participant**” option user can define the **participant** for that activity. Against Filter , select **HUMAN** and then select any user from the list that pops up [Fig. – 45].

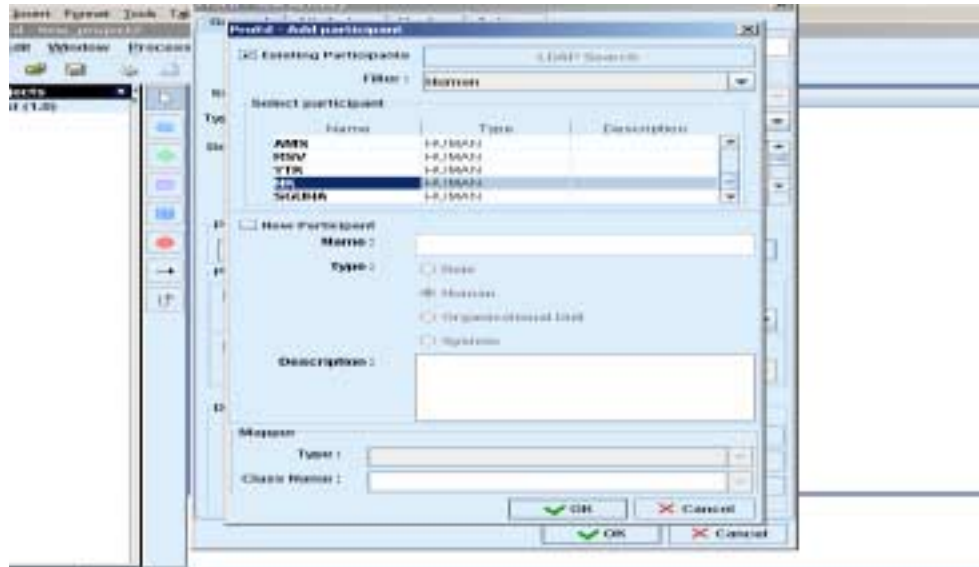


Fig- 45

8.3.9 In **Fig-44** select the tab **Actions** and select “**Add**”. Select from the list for **Type**. Click in the **parameter** box and the select the radio button “**Attribute parameter value**” and the value from the combo box. Repeat for the other attributes. Finally click on **ok** and **save** it [Fig. – 46].

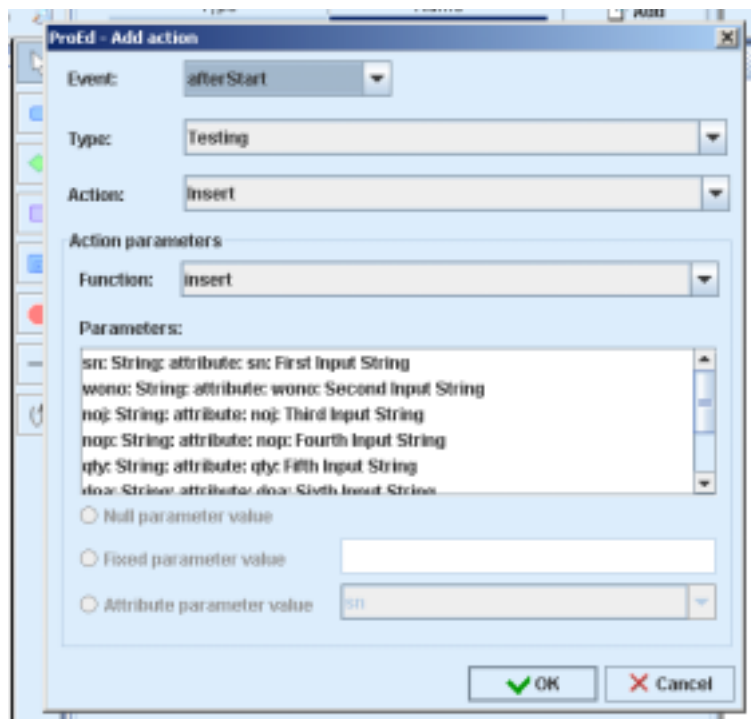


Fig- 46

8.4 Importing a Project

8.4.1 Login with id **bsoa**, Select **Designer -> Import XPDL** [Fig. –47]

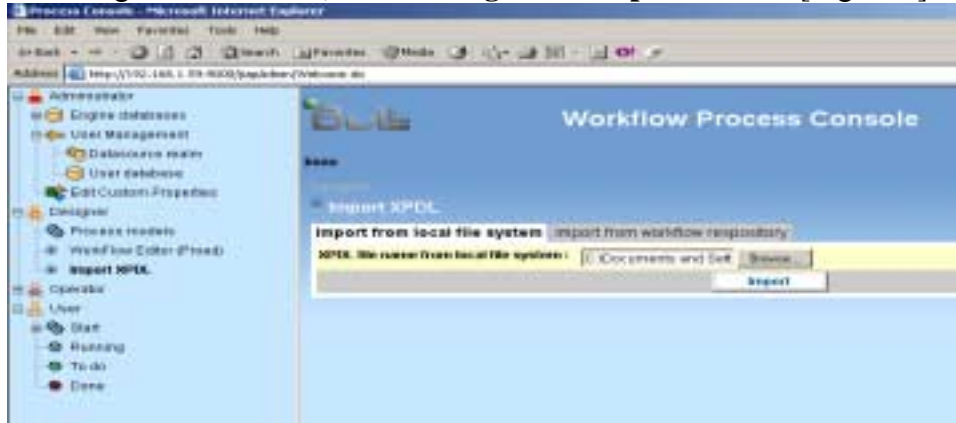


Fig- 47

8.4.2 **Browse** for the file and then select **Import** [Fig. – 48].

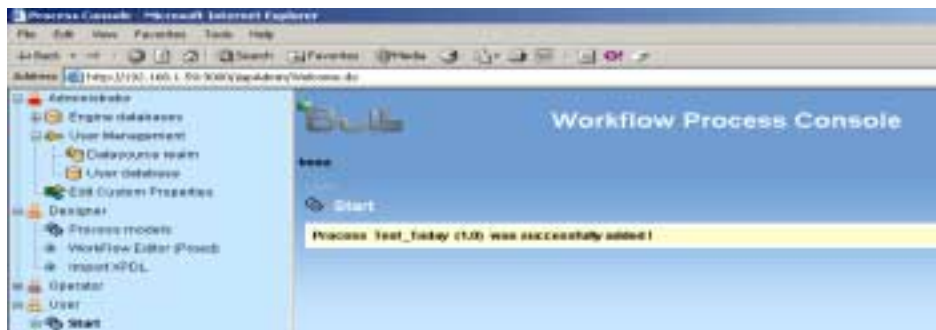


Fig- 48

8.4.3 Logout and **relogin** (Userid : **NK** / password **NK**). Select **User -> Start -> Test(1.0)**[Fig.- 49].

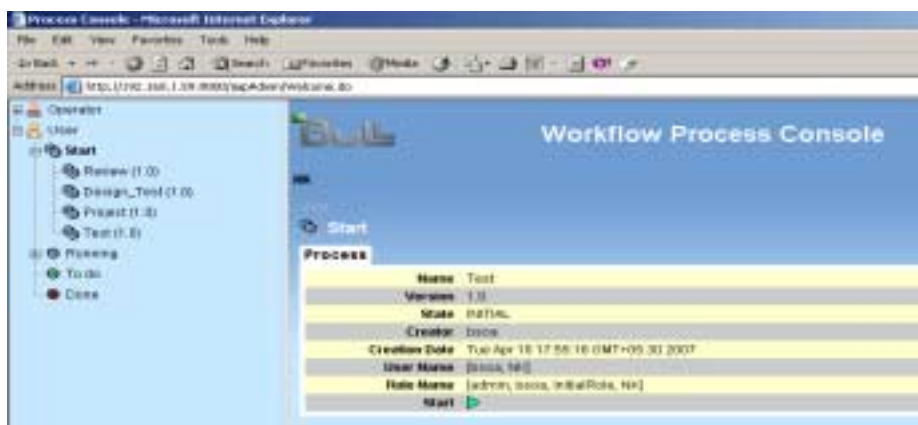


Fig- 49

8.4.4 Click on the **start icon**. A form comes up where user enters valid data and then selects the **submit** button [Fig. -50].

The screenshot shows a web browser window titled 'Workflow Process Console'. On the left is a tree view with nodes: Operator, User, Start, Review (1.0), Design_Test (1.0), Project (1.0), Test (1.0), Running, To do, and Done. The main area displays a 'Test' form with the following fields:

Test	
id	10
code	1118000
req	Execution path for C++
req	1-PTD
dr	1
due	12-05-08
del	21-12-08
prn	PRN
status	PRN004: PENDING LP

A 'Submit' button is located at the bottom right of the form.

Fig-50

NOTE: In the xform's field name, there should be no space (e.g., your name -> is the wrong approach. It should be your_name). In the X-form in Fig.-50 the asterix(*) indicated against the text fields implies that these are to be compulsory filled.

8.4.5 Select **To Do** → **Activity1** [Fig. -51].

The screenshot shows the 'Workflow Process Console' with the 'To do' section selected in the tree view. The main area displays 'Activity1' with a table of activities:

Process name	Version	Creator	Activity name	Action
Test_xxxxxxxxx	1.0	APC	Activity1	

Fig- 51

8.4.6 Click on **start icon**. The following GUI comes up[Fig. –52].

The screenshot shows a web browser window titled "Process Console - Microsoft Internet Explorer". The address bar shows "http://192.168.1.50:9000/jspAdmin/welcome.do". The main content area is titled "Workflow Process Console". On the left, there is a tree view with the following structure:

- Operator
 - User
 - Start
 - Review (1.0)
 - Design_Test (1.0)
 - Project (1.0)
 - Test (1.0)
 - Running
 - Design_Test
 - Project
 - Test
 - To do
 - Test
 - Activity1
 - Done

The main area displays a form titled "Test Today" with a table of input fields:

Test Today	
Activity1	
on	09
no	evaluation portal (DO)
word	1190099
rop	1190099
dy	1
date	12-05-08
del	31-12-08
per	74
remark	100% completed Asset

At the bottom right of the form is a "Submit" button.

Fig- 52

8.4.7 Select the **submit button** to bring up the following GUI [Fig. –53].

The screenshot shows the same web browser window as Figure 52, but the "To do" section is now active. The tree view on the left is updated to show:

- Operator
 - User
 - Start
 - Review (1.0)
 - Design_Test (1.0)
 - Project (1.0)
 - Test (1.0)
 - Running
 - Design_Test
 - Project
 - Test
 - To do
 - Test
 - Activity1
 - Done

The main area displays a message box titled "To do" with the following content:

Process
Activity Activity1 of process Test (1.0) was successfully started!

Fig-53

8.5 Viewing JSP Files Through Bonita

8.5.1 User has to create jsp files and put them in the following directory
C:\CollabCAD\tools\Workflow\JOnAS-4.8.4\BSOA_base\work\webapps\jonas\single\ctxroot

In the example, **Report.jsp** is created. This file is hyperlinked with two jsp files (DetailedView.jsp and SortedView.jsp).

Jsp code for **Report.jsp** is as follows:

```
<html>
<body>
<table align=center border=1><tr><td><h1><center>View of the following
pages:</center></td></tr>
<tr><td><center><a href = "DetailedView.jsp">View Detailed data &nbsp;
&nbsp;</a><center></td>
<tr><td><center><a href = "SortedView.jsp">View Sorted data &nbsp; &nbsp;</a></center></td>
</tr>
</table>
</body>
</html>
```

Jsp code for **DetailedView.jsp** is as follows:

```
<%@ page import="java.sql.*" %>
<% Class.forName("org.postgresql.Driver"); %>

<HTML>
<HEAD>
<TITLE>Selecting data From a table</TITLE>
</HEAD>

<BODY>
<H1>Selecting data From a Table</H1>

<%
Connection connection = DriverManager.getConnection(
    "jdbc:postgresql:test", "postgres", "postgres");

Statement statement = connection.createStatement() ;
ResultSet resultset =
    statement.executeQuery("select * from testing") ;
%>

<TABLE BORDER="1">
<TR>
<TH>SN</TH>
<TH>WONO</TH>
<TH>NOJ</TH>
<TH>NOP</TH>
<TH>QTY</TH>
<TH>DOA</TH>
<TH>DOT</TH>
<TH>PLNR</TH>
<TH>Remarks</TH>
</TR>
<% while(resultset.next()){ %>
<TR>
<TD> <%= resultset.getDouble(1) %></td>
<TD> <%= resultset.getString(2) %></TD>
<TD> <%= resultset.getString(3) %></TD>
<TD> <%= resultset.getString(4) %></TD>
```

```

        <TD> <%= resultSet.getDouble(5) %></TD>
        <TD> <%= resultSet.getString(6) %></TD>
        <TD> <%= resultSet.getString(7) %></TD>
        <TD> <%= resultSet.getString(8) %></TD>
        <TD> <%= resultSet.getString(9) %></TD>
    </TR>
    <% } %>
</TABLE>
</BODY>
</HTML>

```

Jsp code for **SortedView.jsp** is as follows:

```

<%@ page import="java.sql.*" %>
<%@page import="java.util.*"%>

<% Class.forName("org.postgresql.Driver"); %>
<% Vector v = new Vector();%>

<HTML>
    <HEAD>
        <TITLE>Selecting data From a table</TITLE>
    </HEAD>

    <BODY>
        <H1>Existing user Details:</H1>
        <form name="frm" action="SortedView.jsp">
        <%
            Connection connection = DriverManager.getConnection(
                "jdbc:postgresql:test", "postgres", "postgres");

            Statement statement = connection.createStatement() ;
            ResultSet resultSet1 =
                statement.executeQuery("select distinct plnr from testing") ;
        %>
        <font color="006600" size="4">Existing users:
        <% while(resultSet1.next()){ %>
        <TR>
            <% v.addElement(new String(resultSet1.getString("plnr")));%>
        </TR>
        <% } %>
        <select name="title">
        <%
            for(int i=0;i<v.size();i++)
            {%>
            <align="center"><option><%=v.elementAt(i)%></option>
            <%}%>
        </select>
        <input type="submit" name="btn" valu="submit">
        <%! String s = null;%>
        <%s= request.getParameter("title");
            if (s!=null || "".equals(s) )%>

        <%! ResultSet resultSet = null;%>

```

```

<% resultset= statement.executeQuery("select * from testing where plnr='"+s+"'");
%>
<br><br><br>
<TABLE BORDER="1" align="center">
  <TR>
    <TH>SN</TH>
    <TH>WONO</TH>
    <TH>NOJ</TH>
    <TH>NOP</TH>
    <TH>QTY</TH>
    <TH>DOA</TH>
  <TH>DOT</TH>
  <TH>PLNR</TH>
  <TH>Remarks</TH>
</TR>

  <% while(resultset.next()){ %>
    <TR>
      <TD> <%= resultset.getDouble(1) %></td>
      <TD> <%= resultset.getString(2) %></TD>
      <TD> <%= resultset.getString(3) %></TD>
      <TD> <%= resultset.getString(4) %></TD>
      <TD> <%= resultset.getDouble(5) %></TD>
      <TD> <%= resultset.getString(6) %></TD>
      <TD> <%= resultset.getString(7) %></TD>
      <TD> <%= resultset.getString(8) %></TD>
      <TD> <%= resultset.getString(9) %></TD>
    </TR>
    <% } %>
  </TABLE>
<%}%>
</form>
</BODY>
</HTML>

```

8.5.2 Enter <http://localhost:9000/Report.jsp> in the address bar [Fig.- 54].



Fig-54

8.5.3 Selecting "View Detailed Data" will bring up the following GUI [Fig. –55].

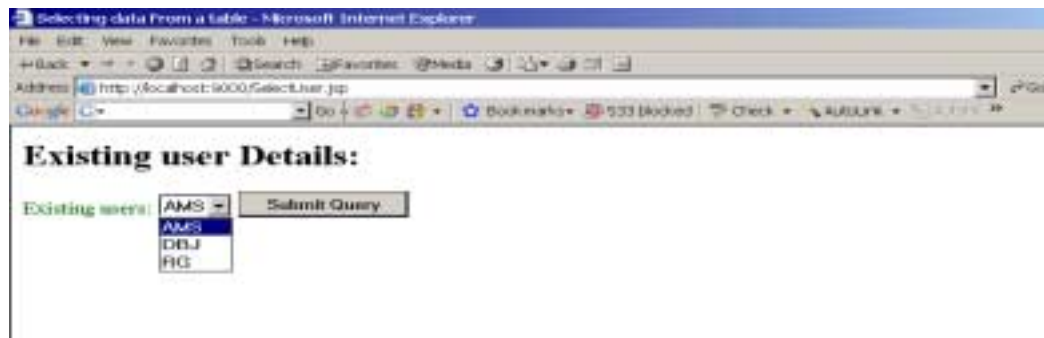


The screenshot shows a web browser window with the title "Selecting data From a Table - Microsoft Internet Explorer". The address bar shows "http://localhost:9000/SelectUser.jsp". The main content area displays a table with the following data:

SN	WONO	NOJ	NOP	QTY	DOA	DOT	PLNR	Remarks
1.0	035/0264	Trinium monitor	ED	10.0	20-09-05	30-06-07	DBJ	part of raw material received in oct.06
2.0	035/0274	Twiner Top Lin Chamber Assy	ED	2.0	10-10-06	31-08-07	RC	na
3.0	035/0281	Parts of Boron Lined Lin	ED	3.0	30-05-06	31-01-07	AMS	80% COMPLETED
4.0	035/0288	Reactor Detectors Assy	ED	10.0	10-07-06	31-01-07	AMS	80% COMPLETED

Fig- 55

8.5.4 Selecting "View Sorted Data" will bring up the following GUI [Fig. –56].



The screenshot shows a web browser window with the title "Selecting data From a Table - Microsoft Internet Explorer". The address bar shows "http://localhost:9000/SelectUser.jsp". The main content area displays "Existing user Details:" with a dropdown menu labeled "Existing users:" showing the following options: AMS, DBJ, RC. A "Submit Query" button is visible next to the dropdown.

Fig-56

8.5.5 User can view a particular user's data. Select a user from combo box and select "Submit Query". The particular user's data will be shown. [Fig. –57].



The screenshot shows a web browser window with the title "Selecting data From a Table - Microsoft Internet Explorer". The address bar shows "http://localhost:9000/SelectUser.jsp?role=DBJ&btn=Submit+Query". The main content area displays "Existing user Details:" with a dropdown menu labeled "Existing users:" showing the option: AMS. A "Submit Query" button is visible next to the dropdown. Below the dropdown, a table with the following data is displayed:

SN	WONO	NOJ	NOP	QTY	DOA	DOT	PLNR	Remarks
1.0	035/0264	Trinium monitor	ED	10.0	20-09-05	30-06-07	DBJ	part of raw material received in oct.06

Fig- 57

9 Case Study : Setting Deadline to an Activity

9.1 Invoking Hook in a Workflow

Hooks are java procedures that can be added to Process or Activity execution. The example given below shows how to set deadline of an activity in a workflow project. Create a workflow with an activity [Step 8.1.7]. In Fig. –44, select the tab **Hook**. In the Hook menu select the **add** button. Next choose a hook from the combo box and select a **radio button** under the **For internal forms** and click **OK** button.

9.1.1 Creating a Hook Program

Hooks are java classes and have to implement the NodeHookI interface. NodeHookI is located in the package hero.hook. Basically, a hook contains two functional methods, redefined in each hook body: getMetadata() and the function related to the hook type.

Note: Before Deployment of a Hook java program, it must be compiled. Refer to section 9.1.2 (for hook loading, compiling and deployment)

The example given below shows how to how to set deadline of an activity in a workflow project.

The code of “**DeadlineTesting.java**” is given below:

```
package hero.hook;
import hero.util.HeroHookException;
import hero.interfaces.BnNodeLocal;
import hero.interfaces.Constants;
import hero.interfaces.ProjectSession;
import hero.interfaces.ProjectSessionHome;
import hero.interfaces.ProjectSessionUtil;
import hero.interfaces.*;

import java.text.DateFormat;
import java.text.ParseException;
import java.text.SimpleDateFormat;
import java.util.ArrayList;
import java.util.*;

public class DeadlineTesting implements hero.hook.NodeHookI {
    public String getMetadata() {
        return Constants.Nd.BEFORETERMINATE;
    }
    public void create(Object b,BnNodeLocal p) throws HeroHookException {}
    public void afterStart(Object b,BnNodeLocal p) throws HeroHookException {}

    public void afterTerminate(Object b,BnNodeLocal n) throws HeroHookException {}
    public void onCancel(Object b,BnNodeLocal n) throws HeroHookException {}
    public void anticipate(Object b,BnNodeLocal n) throws HeroHookException {}
    public void beforeStart(Object b,BnNodeLocal p) throws HeroHookException {}
    public void beforeTerminate(Object b,BnNodeLocal n) throws HeroHookException {}
}
```



```

    public void onReady(Object b,BnNodeLocal n) throws HeroHookException {}
    public void onDeadline(Object b,BnNodeLocal n) throws HeroHookException {

        ProjectSession prjSession;
        String projectName, relation;
        System.out.println("Deadline Testing Programs.....");
        // Get the project context
        try{
            projectName = (n.getBnProject()).getName();
            ProjectSessionHome projectHome = (ProjectSessionHome)
            ProjectSessionUtil.getHome();
            prjSession = projectHome.create();
            prjSession.initProject(projectName);
            Date dNow = new Date();
            SimpleDateFormat df1 = new SimpleDateFormat("dd/MM/yyyy");
            System.out.println("the system time is="+dNow);
            System.out.println("get_act1=" +prjSession.getNodeDeadline("act1"));
            DateFormat df = new SimpleDateFormat("dd/MM/yyyy");
            Date dateLi = df.parse("20/06/2007");
            prjSession.setNodeDeadline("act1",dateLi.getTime());
            prjSession.setNodeRole("act1","caduser2");
            System.out.println("get_act2=" +prjSession.getNodeDeadline("act2"));
            prjSession.getNodeDeadline("act2");
            System.out.println("inside try block of ONDEADLINE .....");
        }catch (Exception e) {
            System.out.println("inside catch block of ONDEADLINE.....");
            e.printStackTrace();
        }
        System.out.println("after catch block of ONDEADLINE.....");
    }
}

```

9.1.2 Hook Loading, Compiling, and Deployment

Hooks are stored on the file system as standard java classes. It is necessary to load the code that has been written into the application server.

8.3.2.1 Create a source .java file. It must be within the package hero.hook.

8.3.2.2 Copy the java source file into the directory
 %BONITA_HOME%\src\resources\hooks\hero\hook.

8.3.2.3 Go to %BONITA_HOME% directory and enter:

ant deployHook -DhookClass=<name of the java source file>.

In the example:

ant deployHook -DhookClass= DeadlineTesting

9.2 Create a Project

9.1.1 User has to create a project and add activities (at least two) and assign to the users. In the example, a project **Deadline_latest** is created. It consists of two activities namely, **act1** and **act2**, and the participants are **caduser1** and **caduser2** [Fig. –58].

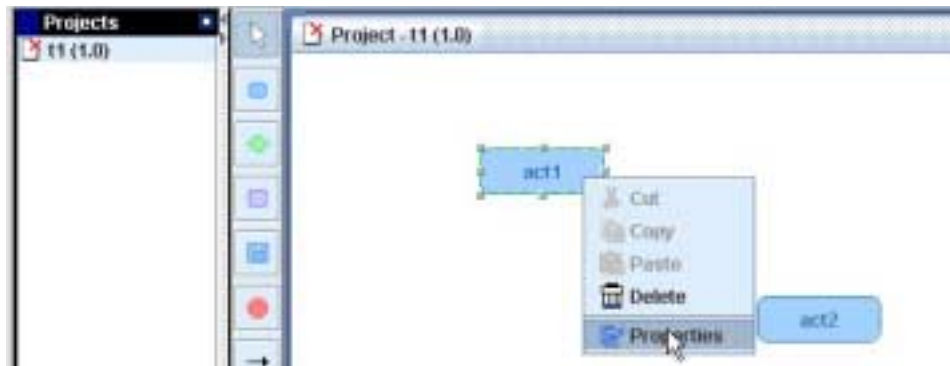


Fig-58

9.1.2 To set a deadline for activity **act1** (eg., 19/06/2007) - right click on **act1** and select properties. Select **add** under **Deadline**. The GUI [Fig. –59] comes up and the user has to set **deadline** of the activity either by selecting the date or the duration. In the Exception text field add the hook name.[The hook template is given later].

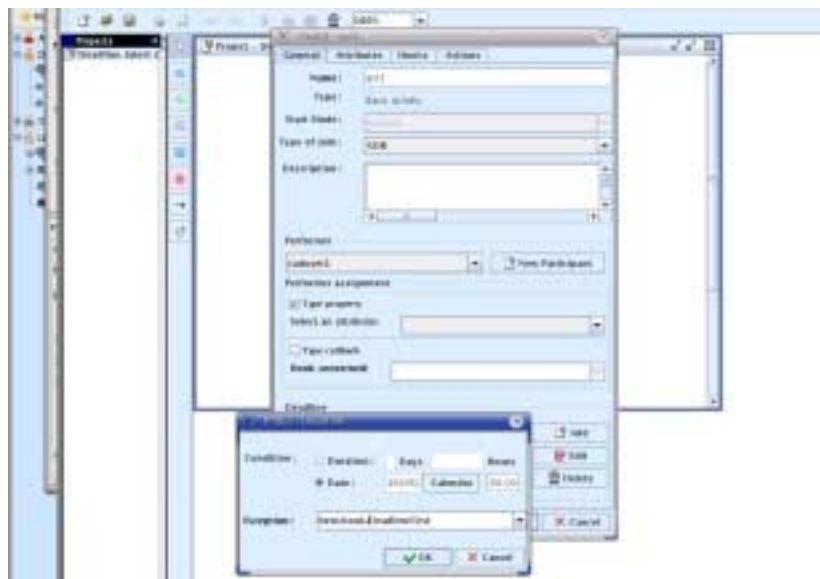


Fig-59

Note: In the example, if **act1** is not completed before 19/06/2007 by **caduser1** it will automatically be assigned to **caduser2** because of the hook java program.

9.1.3 Import the **Deadline_latest** project by selecting **Designer->Import XPDL**.

9.3 Instantiate the Project

9.2.1 Select **User->Start->Deadline_latest(1.0)** and click on the **start icon**

9.2.2 Login as user **caduser2**. In Fig. –60, two nodes (**act1** and **act2**) are active under **To Do → Deadline_latest**.

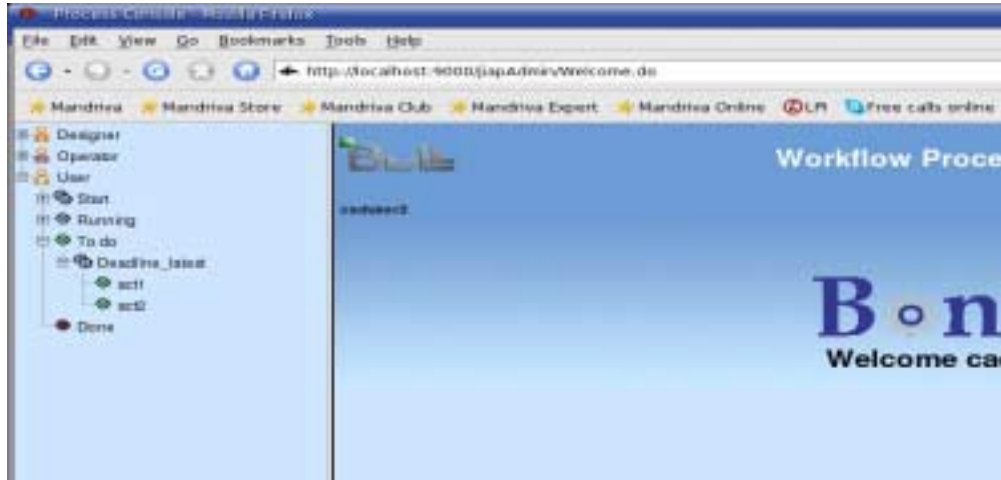


Fig-60

9.2.3 On selecting node **act1**, the following GUI [Fig' – 61] comes up.



Fig- 61

9.2.4 In Fig. –61, click on **start icon**, a message “**Activity act1 of process Deadline_latest (1) was successfully started**” is shown. Repeat the process for the node **act2**.

10. Configuration of Database

If you are using the JOnAS embedded database, i.e., HSQLDB, then you don't have to do any thing.

To configure other databases : Open the config files for your favorite database (Name_of_Database.properties, e.g. PostgreSQL1.properties) from the JOnAS-4.8.4\conf folder.

Edit this file : Enter the data source configuration according to your setup.

```
datasource.name          bonita
datasource.url            jdbc:postgresql://localhost:5432/workflow
datasource.classname      org.postgresql.Driver
datasource.username       postgres
datasource.password       mypassword
datasource.mapper         rdb.postgres
```

Copy the database driver jar file to the JOnAS-4.8.4\lib\ext folder. You can get the latest database jar driver from your database vendor's site.

Configure it on your application server with your database,i.e., in
 \%BONITA_HOME%\build.xml update your driver name .

In JOnAS-4.8.4\conf\jonas.properties, add the bonita datasource name:
 jonas.service.dbm.datasources eg bonita,PostgreSQL1.

In JOnAS-4.8.4\conf\3servers.xml, set the hostname value (localhost by default) at line:
 server id="0" name="S0" hostname="localhost".

This value must be the same as what you've defined in BONITA_HOME\ant.properties.

In JOnAS-4.8.4\conf\carol.properties set the value of jrmp URL:

“carol.jrmp.url=rmi://localhost:1099”. Make sure that the host name and port name values must be the same as what you've defined in \$BONITA_HOME\ant.properties file for "bonita.host" and "jrmp.port" properties.

In JOnAS-4.8.4\conf\jaas.config add the following lines

```
bonita {
  // Use the resource dsrlm_1
  org.objectweb.jonas.security.auth.spi.JResourceLoginModule required
  resourceName="dsrlm_1";
  // Use the login module to propagate security to the JOnAS server
  org.objectweb.jonas.security.auth.spi.ClientLoginModule required ;
};
```

```
bonita-policy {  
    org.objectweb.jonas.security.auth.spi.JResourceLoginModule required  
    resourceName="dsrlm_1";  
    // Use the login module to propagate security to the JOnAS server  
    org.objectweb.jonas.security.auth.spi.ClientLoginModule required;  
};
```

This ends your configuration. Now you have to compile Bonita so that it gets integrated with the JOnAS application server.

For this open a command prompt and go to Bonita home directory and issue the 'ant' command. This will compile Bonita with JOnAS. Now it's time to start Bonita with the application server.

Then open a command prompt and go the Bonita home directory and issue the 'ant initDB' command. This will initialize the Bonita environment.

4.10 To access the Bonita workflow system, open a web browser and type the URL <http://localhost:9011/bonita>

Here you can create new users and the users will be created in the postgresql database (in the table “bnuser” inside your database).